NATIONAL PETROLEUM NEWS

Mid-Continent Plants Hold Their Share Of Increased Gasoline Business

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, June 25

MID-CONTINENT refiners have been obtaining their share of the increase in gasoline business of the country the last two months, for the first time in more than two years.

Gasoline shipments from the field have increased as a result of the extraordinarily heavy purchases of exporters coming at the same time domestic buyers have been busy.

Shipments of gasoline from 80 refineries in the Mid-Continent area which report operating statistics weekly to NATIONAL PETROLEUM NEWS, totaled 398,521,000 gallons the first 12 weeks of this year, as compared with 379,694,000 gallons in the first 12 weeks of 1927, an increase of only 4.96 per cent.

In the second 12 weeks ended June 15, the same group of plants shipped 513,060,000 gallons of gasoline, as compared with 439,747,000 gallons in the second 12 weeks of 1927.

The increase in this period has been 16.67 per cent, which is approximately in line with the rate of increase in actual consumption in the United States this year.

Table 1 shows cumulative shipments of gasoline from the 80 plants —representing about 60 per cent of the operating capacity of the field— for the first 24 weeks of the year compared with the same period last year. For the entire period this year shipments have totaled 911,581,000 gallons, as compared with 819,441,000 for the same period last year, an increase of 11.24 per cent.

Comparisons of shipments one year with another by short periods are more or less unsatisfactory as a guide to the trend of the refining business. This is true for the reason that peculiar conditions existing in one of the periods set up as a basis of comparison often make the comparison unreliable.

An example of this is seen in the periods just cited. In the first 12 weeks of 1927 refiners in the Mid-Continent field were enjoying a good gasoline business. They were pushing their product into competitive

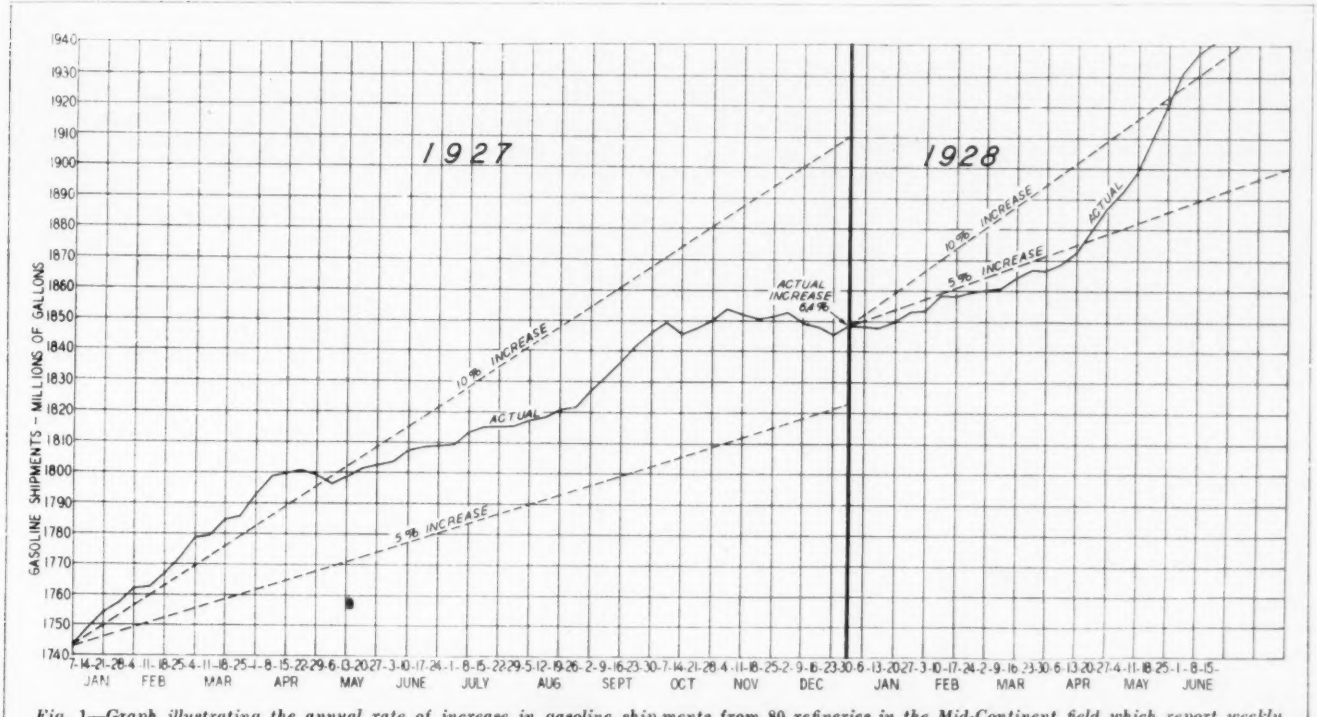

1927
1928
GASOLINE SHIPMENTS - MILLIONS OF GALLONS
ACTUAL INCREASE 6.4%
10% INCREASE
5% INCREASE
ACTUAL
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE

Fig. 1—Graph illustrating the annual rate of increase in gasoline shipments from 80 refineries in the Mid-Continent field which report weekly to NATIONAL PETROLEUM NEWS. *The solid curve represents the total shipments of gasoline from reporting plants for 52 weeks ended with the week shown at the foot of the chart. With this line of the actual annual trend of gasoline shipments lines of increase at the rate of 5 per cent and 10 per cent a year are given for comparison*

territory, with the result that shipments were 15 per cent larger than in the first part of 1926. In January, 1927, shipments were 20 per cent larger than in 1926.

With the advent of spring, however, this business began to fall away. The torrential rains throughout the Mississippi valley resulting in record floods, impassable roads and poor crop prospects, cut down domestic buying. At the same time crude production in the Seminole district was mounting to such heights that reductions in crude prices were forced.

This caused gasoline buyers to stay out of the market as long as possible in anticipation of lower prices. Shipments fell to such an extent that, for May, plants reporting to NATIONAL PETROLEUM NEWS showed an increase over 1926 of only 0.2 per cent.

Comparing this year's business with 1927 naturally shows a small increase during the first part of the year and a very large increase from April to date, because consumption has not been hindered by floods and because buyers have shown a tendency to buy ahead as a result of the constantly rising gasoline market.

Inequalities in the rate of increase in gasoline shipments will be wiped out to a large extent by combining current shipments with those made over a long period. This has been done in an accompanying chart labeled Fig. 1. This chart shows the total shipments of gasoline from plants reporting to NATIONAL PETROLEUM NEWS for 1927 and practically to date in 1928. With this continuous line are shown straight sloping lines representing increases at the rate of 10 per cent a year and 5 per cent a year.

In 1927 the chart shows that shipments began at an annual rate of increase well over 10 per cent which continued until the middle of April. The rate of increase then fell sharply and was almost level until the last of August, when a good fall business brought it up to around 8 per cent. The decline in business late in the year brought the actual increase for 1927 down to 6.4 per cent.

It will be observed that the actual increase in business for the year was below any figure which might have been set on the basis of experience during the early months. Any guess made before July undoubtedly would have been far from correct.

This year the rate of annual increase in gasoline shipments started out below 5 per cent and stayed below that line until the third week of April. At that time the line took a sharp upturn and rose above a 10 per cent rate of increase within a short period of seven weeks.

In view of the rapid changes in the direction of the line of annual increase as exhibited by the 1927 chart it would be hazardous to say now that gasoline shipments of the 80 plants in 1928 will be 10 or 11 or 12 per cent more than in 1927. As a matter of fact that line of increase has begun to flatten out at around 11 per cent since June 1.

It should be remembered that the export activity of the spring months has been an important factor in bringing about the increased gasoline demand.

The second factor has been advance purchases by jobbers in anticipation of higher markets. In the case of the jobber purchases, the storage at jobbing plants will be reduced sooner or later and during any period of jobber stocks reduction, refinery shipments are sure to suffer.

The history of the Mid-Continent has been that export demand has never been constant over any year. Usually it is brisk for a period and then almost ceases for a number of months.

The fact that gasoline stocks at representative plants were increased during the second week of June should be a warning to refiners. Such a condition at this season should call for prompt corrective action in the reduction of crude runs at each plant until its market expands further. Any extensive period of stock accumulation in the summer is inevitably followed by competitive selling at reduced prices.

While the price of gasoline is reasonably satisfactory today there has been a compensating reduction in the return from heavy oils and current indications are that fuel will be even more plentiful as the summer advances on account of the large quantities which will be produced from West Texas crudes.

1928 Isn't 1927

WHEN the full history of the oil industry for this year is written, the outstanding feature undoubtedly will be the readjustment in operating conditions in all its branches which is now taking place.

This readjustment is based on the increasing thought being given, within the industry, to the fact that operations in all its phases must be conducted in the light of current market demand for its raw materials and finished products.

One phase of this readjustment is shown in the trend of the Mid-Continent refinery gasoline market this year to date.

Every refiner and marketer, in fact every student of any branch of the industry, will appreciate the accompanying analysis of this new trend of the market by the Mid-Continent Editorial Bureau of this publication.

Table No. 1—Cumulative shipments of gasoline from 80 refineries in the Mid-Continent for the first 24 weeks of 1928, compared with the same period in 1927.

Week	1927	1928	Per Cent increase
1	30,364,000	30,488,000	0.41
2	64,924,000	64,115,000	*1.25
3	95,893,000	96,780,000	0.92
4	124,348,000	128,755,000	3.54
5	154,562,000	159,791,000	3.38
6	183,678,000	193,530,000	5.36
7	215,320,000	224,975,000	4.48
8	247,196,000	258,276,000	4.48
9	281,012,000	292,538,000	4.10
10	313,150,000	325,510,000	3.95
11	346,222,000	361,714,000	4.47
12	379,694,000	398,521,000	4.96
13	419,406,000	437,133,000	4.23
14	454,815,000	475,060,000	4.45
15	488,250,000	512,135,000	4.89
16	521,233,000	553,303,000	6.15
17	557,516,000	596,116,000	6.92
18	592,968,000	636,912,000	7.56
19	631,551,000	682,182,000	8.02
20	668,778,000	730,856,000	9.28
21	706,565,000	779,440,000	10.31
22	742,663,000	825,590,000	11.17
23	780,436,000	869,659,000	11.43
24	819,441,000	911,581,000	11.24

*Decrease.

First Decrease in Crude Stocks in May

NEW YORK, June 23.—The first decrease in pipe line stocks of crude oil and the largest decrease in gasoline stocks so far this year took place in May, according to the American Petroleum Institute's preliminary figures, which cover the country east of the Rocky Mountains.

Pipe line and tank farm gross domestic crude stocks fell off 665,000 barrels in May, compared with increases of 2,101,000 barrels in April, 3,496,000 barrels in March, 1,961,000 barrels in February and 3,713,000 barrels in January.

Refinery stocks of gasoline decreased 2,067,000 barrels east of California in May, compared with a decrease of 204,000 barrels in April, standing at around 25,500,000 barrels on May 31. This was the second decrease in gasoline stocks this year, they having increased 379,000 barrels, 1,512,000 barrels and 2,602,000 barrels respectively in March, February and January.

Lubricating oil stocks and refinery stocks of crude decreased, while kerosene and gas and fuel oil stocks increased.

Lube oil stocks fell off 133,000 barrels in May, compared with a decrease of 99,000 barrels in April.

Kerosene stocks increased 103,000 barrels, compared with gain of 30,000 barrels in April.

Gas and fuel oil stocks gained 2,760,000 barrels in May, compared with increase of 701,000 barrels in April.

Refinery stocks of all products showed a net increase of 74,000 barrels in May at refineries covering approximately 88 per cent of the operating capacity east of California. This compares with a net gain of 1,540,000 barrels in refinery stocks in April.

Refinery stocks of foreign and domestic crude stocks decreased 807,000 barrels, compared with increase of 157,000 barrels in April.

Two Appointments Made to Board Of S. O. of Indiana

CHICAGO, June 23

WITH the election on May 28 of two new directors for the Standard Oil Co. of Indiana, the board of that company is full for the first time in several years. There have been one or two vacancies in the board for the last two or three years. The two new members are L. L. Stephens and C. J. Barkdull.

The places filled by these two men were vacated by William E. Warwick, who retired more than two years ago, T. J. Thompson, who retired more than a year ago, or William M. Burton who gave up the presidency in March 1927. The vacancies of Warwick and Thompson both existed when Amos Ball became a director and one remained unfilled. But the responsibilities of Mr. Ball are similar to those formerly borne by Mr. Thompson.

Mr. Warwick's work as general manager of manufacturing had fallen upon the shoulders of Beaumont Parks, already a member of the board, and when Dr. Burton retired from the president's chair it was filled by E. G. Seubert, already a vice president and director. Thus two vacancies remained on the board, to be filled by men chosen by the board itself.

At the same time he became director, C. J. Barkdull was elected treasurer and assistant secretary of the company. He has worked for the Standard Oil Co. for more than 16 years, starting as a clerk in the general office at 910 South Michigan avenue, Chicago. He was identified with the building division of the manufacturing department at first and never left the manufacturing department until August 1921.

It was at that time that Mr. Barkdull became general auditor of the Midwest Refining Co., a subsidiary of the Standard of Indiana, in Denver. About three years later he was made general auditor of the Standard Oil Co. of Indiana. Mr. Barkdull is a native of Chicago and now lives in Evanston.

L. L. Stevens came into the organization of the Standard Oil Co. of Indiana through the legal department. He is a native of South Dakota and practiced law there from 1901 to 1924, with time out to go to war. In those years he represented the Standard Oil Co. in legal matters in the Dakotas and surrounding states.

Mr. Stephens was prominent in South Dakota, among other distinctions state commander of the American Legion when the company brought him to Chicago to become its general attorney in January, 1924. Since then he has given all of his time to the oil business, and is well known in the industry outside of his own company.

A great many Independent oil men in the middle west got acquainted with Mr. Stephens the same year he came to Chicago, for he immediately became active in the legislative fights which involved the petroleum industry four years ago, during the last presidential campaign year. He was usually on the scene in court and legislative committee rooms in South Dakota, Iowa, Nebraska and Missouri when oil men had to appear in their own defense.

It was erroneously reported by financial wires and published by mistake in NATIONAL PETROLEUM NEWS of June 20, (page 131) that one of the new board members succeeded John D. Clark of Denver, president of Midwest Refining Co., but Mr. Clark is still on the board of Standard Oil Co. of Indiana.

C. J. BARKDULL

Treasurer, assistant secretary, and member of the board of directors of the Standard Oil Co. of Indiana

L. L. STEPHENS

General attorney and member of the board of directors of the Standard Oil Co. of Indiana

Ragle to Give All Time To Association Work

CLEVELAND, June 23.—H. H. Ragle, president of the Michigan Oil Men's Association, has yielded to the request of the association's board of directors and is devoting all his time to association work with Wayne C. Hughes, the association's secretary. Sectional petroleum clubs are being organized to bring the Michigan marketers into a closer relationship.

Mr. Ragle has been president of the association six years. He planned to enter business in another state following his resignation from the American Oil Corp. at Jackson in April and while resting at Battle Creek the directors prevailed upon him to change his plans and stay in Michigan.

Beginning about 1920, Mr. Ragle was president of Federal Petroleum Co., an oil retailing and jobbing organization in Jackson, subsidiary to the American Oil Corp., which was a compounder of motor oils and a carload marketing company headed by Andrew J. Callaghan. The two companies merged about three years ago.

Mr. Ragle succeeded Mr. Callaghan as president of the Independent jobbers of Michigan. During his six terms of office he has given a great deal of his time and attention to matters of general interest to the oil men of the state.

TULSA—C. W. Hughes has been appointed to have charge of petroleum engineering for the Pure Oil Co.'s southwest producing division. He succeeds W. W. Scott, who recently resigned to become chief petroleum engineer for the Humble Oil & Refining Co.

Independent Oil & Gas Seeks Manhattan Oil Properties

(By Telegraph)

TULSA, June 25

THE Independent Oil & Gas Co., has obtained an option on the properties of the Manhattan Oil Co., Kansas City, it was announced here today by R. B. Pringle, vice president of the Independent. The option is expected to be exercised July 1, although certain details are yet to be worked out.

Consolidation of the two companies is to be effected through an exchange of stock. It is understoood that holders of Manhattan stock will receive one share of Independent stock for about one and a half shares of Manhattan stock.

The Manhattan has a capitalization of 456,000 shares of no par value and the Independent a capitalization of 650,000 shares of no par value. The combined company will have a capitalization of about 1,000,000 shares and be rated at about a $40,000,000 concern. Manhattan stock has never been listed on any exchange. It is owned largely by Albert R. Jones, chairman of the board; W. E. Goebel, president, and a small group associated with them.

The Manhattan has a 7000-barrel refinery at Kansas City, served with crude from southern Kansas fields by a six-inch pipe line. It has about 450 bulk and service stations in the Kansas City district and through middle western states as far north as the Canadian border. The company has about 2000 barrels of net production from 250 wells in Kansas, most of which is of a settled character. It has some production in Texas. The company has about 60,000 acres of undeveloped leases.

Acquisition of the Manhattan will make the Independent Oil & Gas Co., one of the outstanding independent companies in the Mid-Continent field, with two refineries, large producing properties and a direct outlet to the public for its refined products.

It has been the plan for some time of Waite Phillips, chairman of the Independent's board of directors, E. H. Moore, president, and their associates, to round out the organization. A few months ago an effort was made to merge the White Eagle Oil & Refining Co. with the Independent, but principals for the two companies could not come to terms. It is understood that at least two of the officers of the Manhattan Oil Co. will be elected to the board of directors of the Independent.

Present plans call for an extension of the Manhattan's pipe line from its present terminus in Greenwood county, Kans., to the Seminole field in Oklahoma, where the Independent has important producing properties.

General offices of the Manhattan will be moved to Tulsa and consolidated with those of the Independent in the Philtower about July 1.

Phillips Petroleum Buys Kansas City Jobber

(By Telegraph)

TULSA, June 26.—Phillips Petroleum Co. has purchased properties of the Benzo Gas Motor Fuel Co., Kansas City, it was announced today. The properties include 33 stations in the Twin Cities, 23 in Kansas City, seven in Des Moines, with about 400 additional outlets through the middle west. The name of the company will not be changed and the present management is to continue in charge. The premium product at Benzo gas stations will be continued, while Phillips 66 will be the competitive grade sold.

Phillips Petroleum Co. recently purchased a large group of stations in Missouri from the Wilhoit interests to supplement the station system which it has been building for a number of months.

Coming Meetings

Michigan Oil Men's Association, Detroit, Mich., July 26, 27.

Ohio Petroleum Marketers Association, Commodore Perry Hotel, Toledo, O., Sept. 5, 6, 7.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 19, 20, 21.

North American Gasoline Tax Conference, Peabody Hotel, Memphis, Tenn., Oct. 1, 2, 3.

National Safety Council, Petroleum Section, Hotel Pennsylvania, New York City, Oct. 1 to 5.

American Oil Men's Association, Hotel Statler, Detroit, Mich., Oct. 9, 10, 11.

International Petroleum Exposition, Tulsa, Oct. 20 to 29.

Petroleum Refiners Division, National Association of Credit Men, Chicago, Nov. 4, 5, 6.

American Petroleum Institute, Stevens Hotel, Chicago, Dec. 4, 5, 6.

W. A. MONCRIEF

Moncrief Resigns to Start His Own Company

HOUSTON, June 26.—W. A. Moncrief, vice-president of Marland Production Co., and its operating head in Texas, announced June 25 at Fort Worth that he had resigned to enter business for himself. His successor has not been named. Mr. Moncrief has served as chairman of the Pecos County prorating committee and taken an active part in west Texas oil development.

Pennsylvania Tank Wagon Up 1c

PHILADELPHIA, June 26.—On June 27 Atlantic Refining Co. advances tank wagon and service station prices of gasoline 1 cent generally through Pennsylvania and Delaware. This is the first change in tank wagon prices in those two states this year, last previous change having been a 1 cent cut on April 20, 1927.

Kentucky Gasoline Still Scarce

ASHLAND, June 26.—Gasoline demand still exceeds supply in eastern Kentucky refining district and none is available for spot shipment. Other products are moving satisfactorily. Kerosene price is down 0.125 cent. June 25 prices, f.o.b. eastern Kentucky refinery, are:

Gasolines	none available
41-43 kerosene	6.875
32-36 gas oil	4.125
24-26 fuel oil	3.25

NEW YORK, June 23.—Herbert L. Pratt, president of the Standard Oil Co. of New York returned to New York on the Cunarder Berengaria June 22.

The Texas Co. Buys Landreth West Texas Producing Properties for $6,500,000

HOUSTON, June 21

PURCHASE of the west Texas producing properties of the Landreth Production Corp. for $6,500,000 in cash marks a more aggressive field policy on the part of The Texas Co.

Producing property taken over includes the so-called Landreth strip of 182.8 acres in Crane and Upton counties which separates the University (Church & Fields) pool and the Gulf Production Co.'s McElroy ranch development. This property has 18 wells now making about 7500 barrels daily. The deal also includes a half interest with Roxana Petroleum Corp., in 12 Winkler county leases aggregating 1320 acres, which have present rated potential of 70,000 barrels and allowable production of 11,000 barrels daily under current prorating.

Included in the sale were approximately 3,000,000 barrels of crude stored in thirty-two 80,000-barrel tanks and thirty-one 55,000-barrel tanks, comprising in all about 4,265,000 barrels of steel storage.

Thirty-one 55,000-barrel tanks are located on the Landreth Strip; twelve 80,000-barrel tanks on King tank farm; ten 80,000-barrel tanks in Ward county; five 80,000-barrel tanks in Sec. 29, Hendricks Lease and five 80's in Secs. 39 and 40, Hendricks Lease. Approximately 58,000 acres of undeveloped leaseholds of Landreth Production Corp., in west Texas and southeastern New Mexico, were not included in the deal. The Texas Co. has consistently avoided buying undeveloped acreage in quantity since its post-war retrenchment inaugurated in 1921; and the Landreth interests, conversely, have practiced the selling of properties only after they had attained enhanced values through their proving for production.

That The Texas Co.'s producing department retrenchment had proved an advantage in the period of plenteous crude supplies since the war has been frequently remarked upon in the industry; but analysts have questioned at times whether the company had been sufficiently protected with crude reserves against the time when a shortage of raw material might occur.

The present deal goes a long ways toward confirming the future policy of The Texas Co., in expanding field development, when considered in connection with the conservative wildcatting it has recently practiced on selected acreage blocks.

Less than a year ago, The Texas Co. bought for nominal consideration the operating interest in an Ector county, west Texas, block where J. S. Cosden and associates had drilled two non-commercial producing wells that indicated presence of an oil field. Subsequent drilling failed to develop other production, but testing continues.

Last December a deal for west Texas producing properties of the Pure Oil Co. fell through after prolonged negotiations.

A NUCLEUS for expansion in the Permian salt basin area of west Texas and southeastern New Mexico had already existed in properties owned by The Texas Co., in the McCamey district of Crane-Upton counties, and by The Texas Production Co., in Lea county, New Mexico. The Texas Production Co., is the Rocky Mountain arm of The Texas Co., operating in Colorado, Wyoming, New Mexico and other mountain states.

The Rhodes well of The Texas Production Co., in 22-26S-37E, was the discovery completion of the New Mexico area north of the Llano-Roxana wells on the Scarbauer ranch, Winkler county, Texas, and northeast of the currently more spectacular Leck development of Gibson & Johnson. The Texas-Rhodes well has been averaging about 100 barrels daily of crude and distillate, along with about 23,000,000 cubic feet of gas, for months.

Important gassers of the Marland Production Co., and the California Co. partnership on the Sholes and Eaves tracts, in this part of New Mexico, have tended to prove the existence of large oil deposits in the general territory.

The short pipeline system being taken over by The Texas Co., in its trade with Landreth, could be easily extended north from Winkler county into New Mexico as development needs require it. The line now connects the Hendricks field with Texas & Pacific railroad loading racks near Monahans, Ward county.

In using the Landreth lines taken over it would require only about 100 miles of new construction north from McCamey to Monahans and north from the Hendricks field to the Rhodes well to connect up all properties of the two subsidiaries of The Texas Corp., in the salt basin area.

That such construction eventually will be carried forward may be safely assumed.

The Texas Co. could hook into its existing general pipeline system in the Ranger territory, about 200 miles east of Midland, or a separate trunk to handle sulfur crude might be built out of the territory. The Texas Co.'s main refinery is at Port Arthur, on the Gulf Coast.

NATURAL assumption would be that production from west Texas fields would be handled to this main plant through whatever transportation outlet is eventually provided. Some speculation, however, arises from the fact that The Texas Co., several months ago, purchased about 350 acres adjoining the Phelps-Dodge smelting properties at El Paso, so that refining plant construction may be considered there.

Five previous sales of holdings of the Landreth Production Corp. total $6,950,000, according to Ed A. Landreth, president. These include one for $200,000, two for $250,000, and two sales to the Phillips Petroleum Co. aggregating $6,250,000. These last named two included the Landreth gas and oil interests in the Ibex pool near Breckenridge, Texas, in 1924 for about $3,000,000 and its oil interests in Wilbarger county in 1926 for $3,250,000. In this sale the Landreth interests retained 20 per cent of the net profits.

In the past three and a half years sales of Landreth holdings have amounted to $12,750,000, according to Mr. Landreth.

"Officers of the Landreth Production Corp. are B. S. Walker, chairman of the board; E. A. Landreth, president and general manager; W. H. Landreth, of Joplin, Mo., treasurer; R. H. Foster, associated with the law firm of Samuels, Foster, Brown & McGee of Forth Worth, vice president and general counsel; and W. M. Smith, secretary."

N. P. A. Trustees Meet

CLEVELAND, June 25.—The trustees of the National Petroleum Association met in Cleveland June 22 and 23 and named Sept. 19, 20 and 21 as the days for their annual meeting at Atlantic City. Much time was spent planning a program which will be different from any heretofore offered.

The meeting was at the country home of Fred G. Clark, president of the Fred G. Clark Co. Friday noon Mr. Clark gave a luncheon at the Kirtland Club which was attended also by various Cleveland oil men.

Automatic Control *Feature New Natural*

AUTOMATIC control of operations, to an extent new to most natural gasoline plants, is carried out in the new absorption plant of the Gilmore Oil Co., located at Walnut and 21st streets, in the Long Beach field of the Los Angeles basin.

This plant, known as Gilmore Gasoline Plant No. 1, was erected on an adjoining site to replace the old plant of the same name, one of the earliest built in the field. The new unit has a normal capacity of 30,000 gallons per day, which can be boosted to between 40,000 and 50,000 gallons with rich gas.

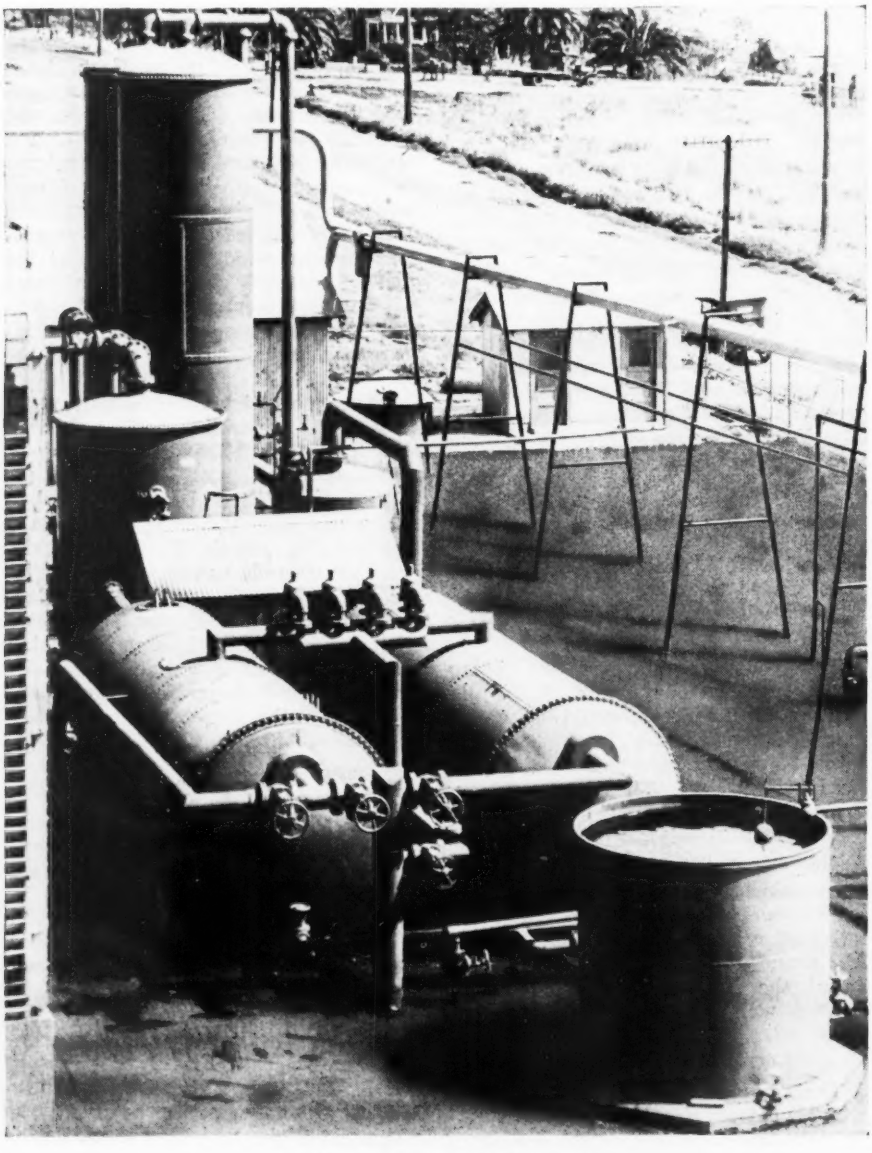
The gas from the new deep Long Beach wells has a gasoline content of about 2½ gallons per 1000 cubic feet, richer than that from most fields in the state. The contract for the new plant was awarded to J. A. Campbell, natural gasoline engineer, and Campbell equipment was used throughout.

Perhaps the most interesting feature of the new plant is the completeness of the system of automatic controls. It is almost literally true that the operator has nothing to do but read gauges and fill out the log sheets. Beginning with the absorbers, the outgoing fat oil is controlled by floats in the absorbers, which also automatically control the speed of the fat oil pumps. This arrangement controls the flow of the oil as far as the still, where the rate of outflow is again controlled by a float. The speed of the lean oil pump governs the rate of oil circulation throughout the system, and is controlled by a handthrottle which, once set, maintains the rate constant until a change is desired.

The temperature of the gasoline vapor leaving the dephlegmator is held constant, within narrow limits, by means of a Foxboro automatic recording thermostatic control, thus maintaining constant the endpoint of the gasoline.

Finally, the temperature in the base of the stabilizer is held constant by another Foxboro control, and this fixes the distillation recovery or stability of the product. Constant steam pressure, which is essential to the smooth operation of the plant, is maintained by an automatic pressure-responsive fuel governor at the boiler plant. Even the water level in the boilers is kept constant automatically by means of feed-water regulators.

Exhaust steam at 40 pounds pressure from the pumps is used for agitation in the still. The amount of steam for agitation is automatically proportioned to the requirements, because speeding up the pumps to increase the oil circulation increases the amount of exhaust steam from the pumps.



Scrubbers, absorbers and steam mains

IN ADDITION to being remarkably easy to operate on account of the automatic features, the plant is also easy to maintain in efficient condition. Attention has been given to points which cause maintenance trouble and expense in many plants, with the result that some sources of trouble have been eliminated entirely and others have been greatly simplified.

The steam preheaters are elevated enough to allow the live steam condensed in them to return directly to the boilers by gravity. This eliminates the use of traps or pumps for handling the condensate; and, since a separate live steam line is provided for the preheaters, allows part of the boilers to operate on distilled water, thus doing away with scaling trouble in those boilers.

The heat exchangers are of the long multi-tubular type, using tubes of comparatively large diameter. Over five years' experience has shown that this type of exchanger will not accumulate scale or sediment if the absorber oil is kept in reasonably good condition, and hence maintains its efficiency without cleaning.

The dephlegmator, or partial condenser, is a common cause of maintenance trouble in some plants. This apparatus has to condense practically all the steam used for agitation, together with the absorber oil vapor stream from about 330 degrees F. to about 220 degrees F. This represents a large mass of heat. Where this heat is transferred to circulating water in closed apparatus, there is trouble from scaling, making fre-

Gasoline Plant Easy Maintenance

quent cleaning necessary. If oil from some point in the absorption cycle is used for cooling, the introduction of this extra heat upsets the heat balance in the heat exchanger, and throws a heavy additional cooling load on the oil coolers.

The Campbell dephlegmator consists of a flat pipe coil partially immersed in water in a shallow redwood box mounted on top of the cooling tower. The temperature of the vapors leaving the dephlegmator is controlled by varying the level of water in the box. The heat absorbed by the water is dissipated directly by boiling and evaporation of the water. No water is circulated, and no additional load put on any other part of the plant.

SINCE all parts of the pipe coil are easily accessible for cleaning, it is not necessary to by-pass or otherwise interfere with production to clean the surfaces. One dephlegmator of this type has been working at full load for nearly five years without a minute's interruption of service for cleaning or repairs.

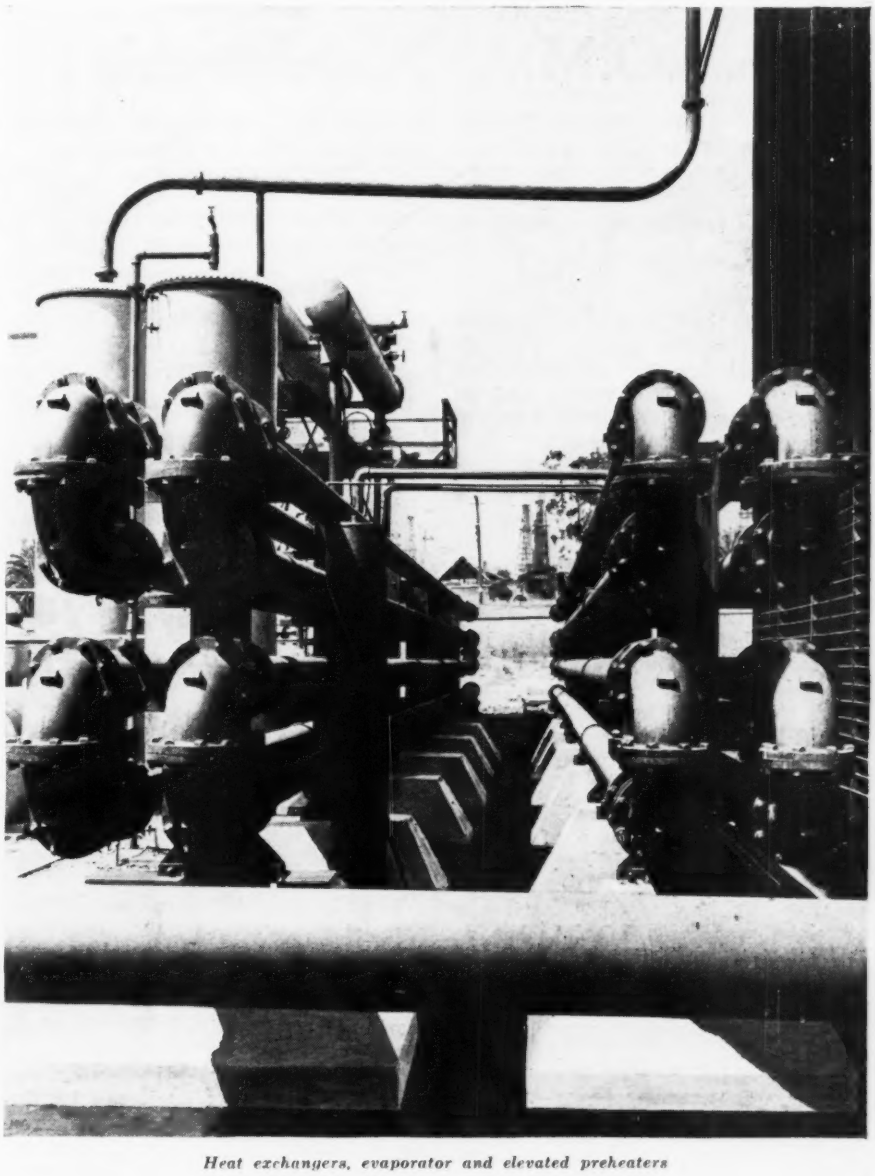
All oil and gas cooling and gasoline condensing is done by open pipe coils of welded and hot-bent construction throughout. These coils are mounted in an open, narrow louvre type tower without decks, 20 feet wide by 64 feet long by 42 feet high. The coils are arranged so as to expose a maximum area of pipe to the spray of fresh, cold water from the spray heads at the top of the tower. This type of cooling permits cleaning without interruption of service.

One of the novel features of the plant is the "Oil Froth" inlet gas scrubber. One of the worst enemies of efficient plant operation is the foreign matter which comes in with the gas. This consists of water, crude-oil mist, and finely divided foreign matter, such as silica, calcium carbonate and rotary mud. It is difficult to form a permanent emulsion with the usual grades of absorption oil and clean water. However, these foreign substances act as emulsifying agents and are responsible for the severe emulsion troubles experienced under some conditions. Such emulsion interferes with the proper operation of every piece of apparatus in the oil circuit.

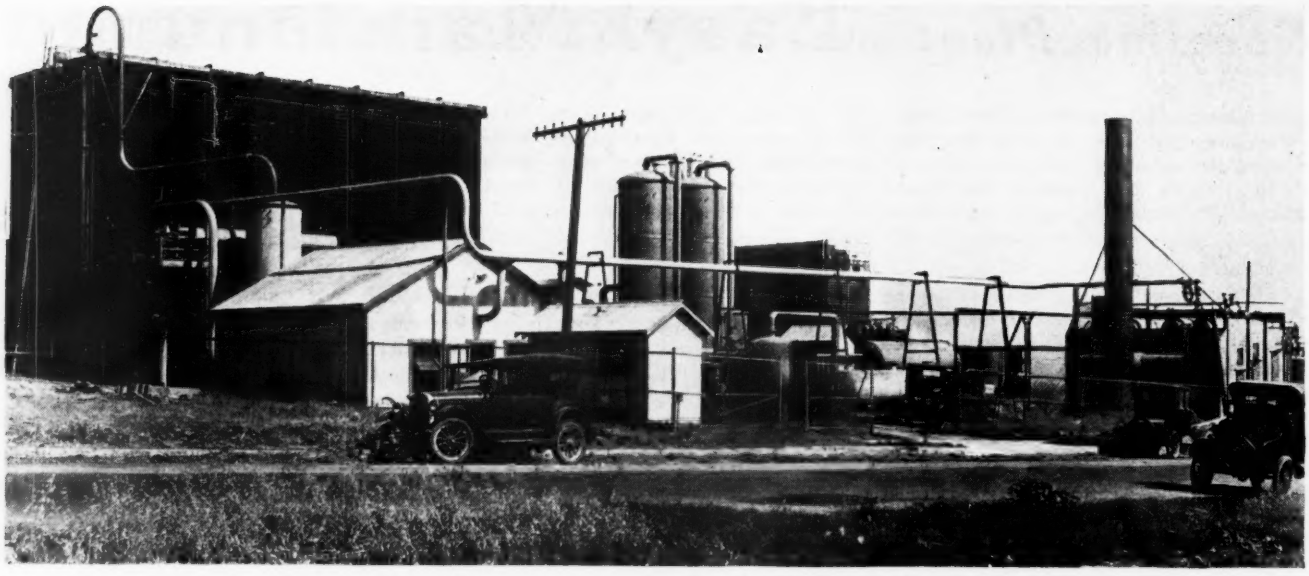
THE "Oil Froth" scrubber, built under patents, is quite similar in construction to the absorbers bearing this trade-mark. It is a large cylinder, 8 feet in diameter by 12 feet high, containing three perforated froth plates, with provision for flushing each plate with water to wash down the emulsion, through individual drains, to the bottom. A small steam pump circulates compression condensate from the base of the scrubber over the top froth plate at the rate of about five gallons per minute. A water drain is provided in the bottom.

EXCESS condensate containing the crude and any foreign substances which are not drained off with the water are drawn off automatically to a settling tank, clear liquid from this tank is then rerun in a small steam still to recover the gasoline content. By means of this system, the absorber oil is kept in condition, and heat exchangers, preheaters and coolers maintain their maximum efficiency indefinitely.

This new plant was built beside the old one, which had been operating nearly six years. Changes had been made from time to time in the old plant in an endeavor to keep pace with the progress in design. Finally, when new deep production from Signal Hill came in, the management of the Gilmore company decided it would not pay to attempt further improvement of the old equipment, but that they would instead lease additional ground and install a complete new plant. In accordance with this decision the new plant was ordered, and was ready for operation within 30 days after the contract was awarded. The increase in extraction in the new plant, even when operating on the same amount of gas, as compared with the results obtained from the old plant, has justified the building of the new plant, officials of the Gilmore company state.



Heat exchangers, evaporator and elevated preheaters



General view of Gilmore Oil Co. plant, Long Beach, Calif., with old absorbers in background

Another Price Reduction Voted In I.O.M.A. Membership

CHICAGO, June 23

MEMBERSHIP fees have been reduced again by the Independent Oil Men of America. The decision was reached by the board of directors in session in Chicago on June 20. The new rate card does not take effect until Jan. 1, 1929, but at that time it will be possible for a filling station man to enjoy all the practical benefits of association membership for $3 a month and no member however large will have to pay more than $100 a month.

Thirty I.O.M.A. members interested in the development of Red Hat motor oil assembled in Chicago the day before the directors' meeting and worked out a number of matters of more or less private concern.

They decided that S.A.E. viscosity numbers should be applied to Red Hat motor oils. They ruled that Red Hat might be sold for 25 cents a quart at retail if any jobber should see fit and they made membership in I.O.M.A. contingent upon stocking Red Hat lubes.

When the directors met the next day they gave the stamp of official approval to all the deliberations of the Red Hat motor oil committee. So now any new member, active or associate, who joins I.O.M.A. has no choice but to stock Red Hat products. The minimum requirement is three drums of motor oil and 60 pounds of grease. The directors present were as follows:

J. O. Abshire, J. McE. Ames, R. E. Andrew, F. E. Bergfors, William F. Burke, E. H. Hilpp, A. L. Lommel, Frank Muench, Charles S. Rosenthal, S. W. Rusk, W. E. Scott, E. E. Smith, J. H. Whitaker and J. M. Wolf, besides C. L. Maguire who presided.

The resignation of Roy B. Jones, Panhandle Refining Co., Wichita Falls, Texas, from the board was accepted and the vacancy filled immediately by Jack Shlifer, Intercity Oil Co., Philadelphia.

A committee of directors was appointed to select a man to head the Red Hat motor oil department of the association but no name was suggested.

Lou Harrington, manager of the association, procured the permission of the board to employ John E. Blagen as field secretary. Mr. Blagen is a man of experience in association work and a friend of Mr. Harrington's.

The most unexpected development at the meeting was a change by the directors of the association's spread eagle emblem. The lines, design and color combination remain unchanged but the words "Gasoline" and "Oil" have been stricken out and in their place is the legend, "Emblem of Dependability." Mr. Harrington explains that the Spread Eagle was never a trade mark and had no direct bearing upon the merchandise but was rather a sign of the collective integrity of the organization's members.

With regard to the membership rate which was cut from 30 to 50 per cent, depending on the class of membership affected, the entire membership has been divided into two classes, active and associate. The only difference is that associate members can not vote or hold office and get their territorial rights from some active member who vouches for them.

The membership rate for associate members is $3 per month per station and if an oil man has more than five stations he will not be eligible for associate membership. He must be an active member or none at all. The active membership is divided into five distinct groups, to wit, (1) refiners, (2) car load marketers, (3) compounders, (4) big jobbers and (5) little jobbers. Their initiation fees and monthly dues are different:

Refiners and car load marketers pay the same, $500 to get in and $41.67 a month. Compounders must pay $250 initiation fee and $32.50 a month. Big jobbers are those with more than 10 stations. They pay $5 each for their stations up to a maximum of $100 initiation fee, and their monthly dues are $5 for the first 10 stations, $3 for the next 10 stations and $1 a month for all the rest. Small jobbers with less than 10 stations pay a flat initiation fee of $50 and $5 a month per station.

Provision is also made for "affiliated members" such as do not fall in the above classifications and they pay a flat $25.

"Lubrication Week" to Stimulate Trade Planned by Ohio Marketers

Staff Special
CLEVELAND, June 25

OHIO is to have a Lubrication Week, Nov. 10 to 17.

Lubrication week will be the first joint enterprise of the Ohio marketers to stimulate business and increase profits by direct action. It is expected that all members of the Ohio Petroleum Marketers Association and even many of the large integrated companies that never have gone in for co-operation with the smaller companies, will participate in this effort to make the automobile owners conscious of the benefits of proper lubrication of their cars outside their motors.

If the November venture is a success the Ohio marketers will set aside two weeks each year which will be designated "Lubrication Weeks."

Special inducements will be made to get motorists into oil company stations to have their cars thoroughly lubricated. Oil company employes will be especially trained to explain to customers the economy in having chassis lubricated thoroughly at frequent intervals.

George E. Read, Cleveland division manager of the Calumet Refining Co., Cleveland, is credited with the idea of a lubrication week and the Tri-County Petroleum Club, whose members are oil distributors from Akron, Canton and several other cities in the industrial region of Ohio, was the first to give serious consideration to the idea.

Mr. Read addressed the 14 oil clubs of Ohio in April, speaking before each on the subject of "Lubrication and Profits." He emphasized the value of good lubrication service as a builder of gasoline gallonage.*

The Tri-County club immediately appointed a committee to work out a plan for a lubrication week before summer but the task was too large to accomplish in a few weeks and the assistance of the rest of the marketers in the state was sought because of the greater effectiveness of a statewide observation.

Nine other clubs have already appointed committees to cooperate in the lubrication week planning, according to W. A. Milne, executive secretary of the Ohio Petroleum Marketers Association. A meeting of the committee chairmen and officials of the state association will be held July 6 in the Chittenden hotel, Columbus, to work on the plan.

There are two main objects to be obtained in the lubrication week plan, Mr. Milne pointed out. One is to make the oil marketer appreciate the value of lubrication as a profitable business if properly conducted, and the other is to give automobile owning public what the advertising experts would call a "lubrication consciousness."

It has been pointed out that lubrication is one of the few remaining efforts about the oil marketing business, as related to automobile service, that can be greatly increased without taking the trade from a fellow distributor.

Relatively few automobile owners have their cars lubricated often enough to keep the cars out of the repair shop as long as they should, say jobbers operating greasing stations. Automobile owners may carefully watch their motor oil, keep it to the proper level in the crankcase and replace it every 500 to 1000 miles, but they do not have their chassis lubricated every 500 to 1000 miles, although car manufacturers have never provided for continuous lubrication of chassis parts as they have for motor parts.

If the automobile owning public can be taught that a dollar spent for chassis lubrication today may mean $10 or more saved in a repair bill next week, the oil companies believe they will have overcome the largest obstacle against bringing into their greasing stations a large proportion of automobiles in each marketer's territory. Good work in building up car lubrication service has been done by some oil companies. Some automobile dealers have kept after their customers to have their cars lubricated regularly but there is usually difficulty about the job being done at a car dealer's garage because most automobile mechanics do not like to bother with greasing work and few dealers' garages have enough of this work to have one well trained man employed for it alone.

THE Ohio oil companies who have not had men employed on chassis lubrication regularly, will try to educate those who have been doing the work, or new men, so they can handle each lubrication job quickly and intelligently before the special lubrication week is advertised.

There will be banners on stations, on tank trucks, and salesmen's cars. There probably will be some newspaper advertising financed cooperatively by the marketers of a community and handbills to be given gasoline customers when they are fueling.

Special emphasis will be laid on the necessity of changing from summer to winter compounds in the transmission and differential cases, and if another week is held next spring on the need of changing from winter to summer compounds.

The oil marketers believe that lubricating the motors and chassis is primarily their business. They believe they can do it better and more quickly than the automobile dealers' garages, and also that they can do it more cheaply, and that this is a point that will attract many car owners.

Good Greasing Means Good Tools

TO DO a profitable oiling and greasing business the marketer must have adequate equipment. Yet his outlay need not be so very expensive. He must have a lift, rack or pit. The lift and the pit are the most economical of space. The lift has a great deal of advertising value and is less of a hazard than the pit. The rack is the cheapest to build but, with its ramp, requires more space than the other two types of service units.

Some companies have built low racks over shallow pits to give operators ample work space under a car. A few companies have installed racks radiating from their lifts which they use as turntables. A car may be partly lubricated on a lift and the parts of the car which may be reached easily aboveground are lubricated after the car has been pushed on a rack.

The operator must have grease and spray guns, and oil cans to do every necessary job and reach every part that needs lubrication. He must have wrenches and plyers. He must have plenty of clean rags because nothing displeases a car owner more than to find smears of oil or grease on the finish or on the upholstery.

The greasing station owner and operator can well afford to watch the advertising of the makers of equipment for this work. New devices and tools are being continually brought out to allow a better job of car greasing to be done in shorter time than formerly.

*See NATIONAL PETROLEUM NEWS, May 2, 1928, p. 23.

Field Practice in Rocky Mountain Area

By Fred E. Wood*

Presented before American Petroleum Institute Meeting, Colorado Springs, June 15

ROTARY drilling equipment has been employed in several Rocky Mountain fields and in most cases has been found unsatisfactory, due primarily to the high cost of installation for the comparatively shallow holes drilled. The cost per foot drilled as applied to the necessary rotary equipment is for that reason excessive. In addition to the initial investment the cost of maintenance and repair work for rotary tools is greatly in excess of similar costs for cable tools in the Rocky Mountain district.

The shales in the average Rocky Mountain field are too hard to be drilled successfully with rotary tools, and moreover, as they do not mix readily, they are not only difficult to wash from the hole but are poor mud making material. These shales frequently carry minerals which are too hard to be drilled with rotary tools but which crush easily with cable tools.

The Rocky Mountain district, because of the depth of wells and character of formations encountered in drilling, does not permit the saving in pipe usually effected by rotary tools in other regions. Also, many water and oil sands are encountered that must be separated and this requires separate strings of pipe.

As many sands carry water under high pressure it is necessary to employ a heavy mud. Rock bits must be used in drilling sands and the heavy mud creates difficult working conditions for these tools.

There is no saving in drilling time with the rotary over cable tools as in many locations it is possible to drill with 1,000 to 2,000 feet of open hole. This makes very rapid cable tool drilling possible.

There is no need here to discuss fully the relative merits of cable and rotary tools. Although the fundamental reasons for the use of cable tools over rotary tools have been mentioned, a still further objectional feature of the rotary is the fact that rotary holes are not always straight and this reacts unfavorably in the operation of pumping equipment. Cable tools are believed to drill straighter holes and this advantage has been strengthened by the development of the winged drilling stem which in effect is a stem with spiral wings located on either end.

These stems have four wings to each spiral from 4 to 6 feet in length. The gage of the outside diameter of the spirals is the same as the drilling bit. This new type stem does not permit the drilling bit to veer far from the vertical and gives a full, round hole for the introduction of casing. The fact that straighter holes are drilled is evidenced in the subsurface elevations which show remarkable uniformity in smooth structure contours where the winged stem has been employed with cable tools.

In recent development work in the Rocky Mountain region high gas pressures have been encountered. The drilling of such wells occasioned the development of what is known as the double anchor packing head. This head relieves the need for casing anchor clamps and tie rods and serves as an anchor for the pipe against tendencies to move both up and down.

Moreover, the pipe can be packed without being moved. This facilitates the handling of heavy strings of casing in high pressure wells without the many hazards ordinarily attending this type of work.

Spider elevators have been successfully employed in the handling of long, heavy strings of pipe in cable tool drilling and have proved a safeguard against the hazards attending the use of the ordinary type of elevator.

RECENTLY some experiments have been carried on with pumping wells in the Salt Creek field to determine the relation between length of stroke and pumping motion and the comparative pumping efficiencies of different combinations. The normal pumping motion in the field is from 24 to 26 strokes per minute and the stroke varies in length from 21 inches to 36 inches. Volumetric pumping efficiencies average only about 15 per cent, or, in other words, the amount of oil pumped approximates 15 per cent of actual pump displacement.

Experimenting has shown that the speed of the stroke could be reduced materially without affecting production and in the case of part time pumping wells it is frequently not necessary to increase pumping hours to make up for diminished plunger travel. This results in a higher volumetric pump efficiency.

It was also found that reduction in stroke did not materially affect the production except in wells where a considerable amount of gas was produced with the oil. In such cases a reduction in the length of the stroke ordinarily decreases production.

While these conclusions were borne out on a large number of wells, to be more specific the case of one well is cited. This well was equipped to pump at the rate of 3 strokes per minute. Prior to the installation of this slow motion equipment the well had been making about 5 barrels of oil per day and the well was pulled two and three times per month.

This well had been pumping with 20 strokes per minute with a 28-inch stroke and pumped off in about 4 hours per day. After the slow motion equipment had been installed the production increased to double its former amount.

IN ORDER to handle the production, however, it was found necessary to increase pumping time to 12 hours and to increase the length of the stroke to 36 inches. The well has not been pulled in 8 months and is still producing without showing any decline. The volumetric efficiency of the pump was greatly increased with the reduced motion, and the wear and tear on the equipment was decreased, resulting in a great saving in lifting cost through reduced pulling jobs.

The fact that pulling jobs interrupt the steady flow of oil to a well has been overlooked in normal production practice. It has been found that in most cases in Rocky Mountain fields the longer the oil flow can be maintained in the sand the more consistent the production. Reduced motion, therefore, aids in the production of oil by maintaining a well in pumping condition for a longer period of time.

It has been generally known that shortening flow lines has a marked effect in increasing flowing well production. This principle may be applied in a general way to pumping wells, although there is much less reason for success in pumping wells. If tanks are moved to well locations the lead lines may be shortened and a considerable amount of the pressure on pump cups may be relieved, particularly in cold weather.

Mr. Wood's paper consisted of notes on unrelated subjects having to do with some of the more recent improvements in drilling and operating methods in the Rocky Mountain district. He concluded by saying that the observations of a number of operators were included in his suggestions for good practice.

*Petroleum Engineer, Midwest Refining Co.

Free Tourist Camp Improves Gallonage

At Wayside Service Station

How Illinois Town Regulates Operation of Lodge to Keep Out Undesirable Transients and Maintain Attractive Stopping Place

Le Penseur! Here is a high type of automobile tourist that takes advantage of camp accommodations. He is a professor in an Ohio college, he said, and was spending with his wife a few days in the open before the opening of summer classes in a state school which he will teach the next two months. The car was a popular large sedan and virtually new. The picture was taken in Euclid Beach tourist camp, Cleveland

By Ward K. Halbert
N. P. N. STAFF WRITER

CHICAGO, June 23

TOURIST camps in connection with filling stations are profitable, at least they can be made so, but they require care and they incur responsibility. The care and responsibility can not be sidestepped for obvious reasons.

If a tourist camp is neglected it becomes unattractive and fails of its main purpose, that of attracting trade. If it is not supervised rather strictly it may acquire an unsavory reputation and prejudice local people against the oil man who maintains it. That is the opinion of an oil man who has had experience to back his judgment.

O. F. Wahls, Wahls Bros. Oil Co., Chenoa, Ill., the oil jobber who has tried it, insists that a tourist's camp must not be considered a "piker's hotel." It is a place of lodging and it should not cost the camper much but it must be kept on a plane far above the city "flop house" or the small town "wagon yard" of a generation ago.

"A great many cultured and wealthy people camp back of our tourist camp station," Mr. Wahls said recently. "They drive expensive cars, they use elaborate camping kits and fine tents. Their language and behavior distinguish them, although they often come dressed in rough clothes.

"They are hunting relaxation from their business and social routine. They want to enjoy a few nights of 'roughing it.' They want to sit on the grass, cook on an open fire, eat from their fingers and roll up in a blanket to sleep. That is an impulse everybody feels sometimes and more and more people are doing it every day.

"But these people will not endure filth or familiarity. They want room enough to have their little camp in privacy and they demand tolerable sanitary conditions. Their wants can not be satisfied by an open lot littered with tin cans and newspapers, and they will not camp in a few feet of a busy street. Trees and grass, wood and water, light and plumbing are the main requirements."

IN TERMS of strict accounting, probably no tourist camp is a paying venture because the revenue it yields will not justify the investment in land. Naturally camps have to be reasonably close to a paved highway to get patronage, and such acreage is costly. But land values need not be considered for most camps are temporarily available land, not otherwise occupied.

Counting no land costs, a camp does not have to yield much to justify its existence, and the closer to town it is the cheaper it is to equip. A few electric lights are highly important to prevent prowling, city water is desirable because tourists are dubious about well water, and modern plumbing is a prime requisite.

The tract of land used by Wahls Bros. Oil Co., might be called "made to order." It is near to nature's heart, a grove of 75 huge shade trees in a flat, rectangular grass plot of three acres, dotted with wild rose bushes.

It is at the edge of town. The short side (about 150 feet) fronts the highway—state road No. 4, the short route from Chicago to St. Louis via Bloomington and Springfield. There is a brook along one edge, a fish pond at the back and a quiet field on each side.

Chenoa is 103 miles south of Chicago. Fast trains on the Alton let off nothing there but a raucous whistle and receive only a blank stare. But the "high hat" attitude of the railroad has been more than compensated by attentions from the petroleum industry. The 1300 population is served by 30 modern gasoline pumps, about one for every 17 automobiles.

It is just the town any city man would seek if he felt the urge to collect his wits and get acquainted with himself; quiet but prosperous and pretty to look at. It has paved streets, electric lights and water works, and these modern conveniences all contribute to the desirability of the nearby tourist camp.

THE little natural beauty spot has a history, of course. A landed and public spirited pioneer who loved Chenoa and lived and died there, bequeathed it to the municipality in his will, stipulating that it should never be sold nor used to produce revenue. It was too far out for the weekly band concert, and the wrong shape for a ball park, so it remained for years unimproved.

As a municipal tourist camp it had possibilities and in the last three years came into demand as such, but that necessitated policing and care

A street in a canvas village. These tents are rented to automobile tourists by Euclid Beach park, Cleveland. A table, two chairs and cots are supplied. Tourists must have their own bed clothing

taking and the "city dads" were glad to shift the responsibility when Wahls brothers offered to assume it. The oil company was allowed to use a strip at the roadside for their own business if they would assume the responsibility for the entire park.

THE use of the land costs the company nothing but the keeping of the grounds. The city supplies the current for the five electric lights hung high among the trees over the cinder driveway. But the oil company installed the hydrant and the modern toilet rooms, built four furnaces of fire brick, hung three rope swings, provided park benches and tables for lunches and maintains a constant supply of fire wood, soap and clean towels.

Viewed from the road the camp ground is its own advertisement. It is green, shady and attractive. The clean white tables and benches mark it for a picnic ground and one or more tents indicate that camping is allowed. Almost any tourist's first impression is that he has found a private park where a stiff charge will be made. Often a conversation like this takes place between the tourist and the salesman at Wahls Bros.' station.

"What do you charge for camping?"

"It's free for 48 hours."

"And after that, how much?"

"You can't stay over 48 hours."

"Are you in charge of the camp?"

"The man who runs the station is."

"Why does he run it that way?"

"The park belongs to the city and the law prohibits any camping longer than two nights."

EVEN with the 48-hour rule strictly enforced it is hard to prevent any camp from being abused by the undesirable minority of transients. So Wahls Bros. reserve the right to go to any camper and request his departure on general principles. If he refuses to go the town marshal is called to eject him.

Requirements of admission to the camp are not hard to meet and ordinarily nobody is asked to go so long as he minds his own business. Gin parties, campers that are noisy at night and those that intrude upon other campers are the ones who sometimes are asked to keep moving.

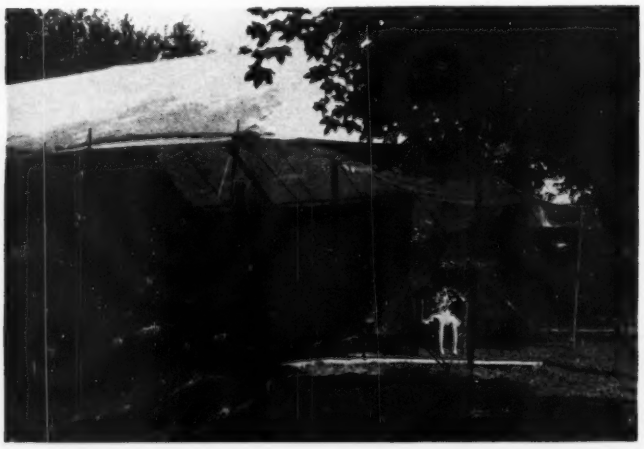
Horses are not allowed in the park. There is also a rule against gypsies because of their tendency to work the town and tell fortunes. Otherwise there is no discrimination against any race.

EL PASO, Ill., a nearby town, maintains a municipal camp and, at first, had no time limit but finally put in the 48-hour rule because of abuses. Allowing people to camp a week gave certain transients time to establish themselves in business and presently the town was overrun with basket weavers, umbrella fixers, scissors grinders and people who subsisted by downright begging in the community and at nearby farm houses.

"In 48 hours," Mr. Wahls says, "people can do a week's washing and let it dry, and that is long enough for any family to camp in one wayside park. The better class of campers only want to stay all night, pitching their tent before sundown and leaving after a leisurely breakfast."

It is not uncommon in the warm season to see 15 or 20 different camps in the Chenoa park. Their oil business, very naturally, goes to the service station between the camp and the road but they are not the major contributors to the station's business. It has patronage from Chenoa people, and that is probably half its business in summer, and by far the most of it in winter. Picnic parties also swell the station's gallonage.

The little wayside park is used continually by small parties on a one-day's outing, groups that have no intention of remaining all night. On one Sunday last summer the park provided space for four such outings; a family reunion, a church picnic, a little excursion of motorists from a



At the left—Al fresco! A party enjoying a late June afternoon on the porch of a canvas cottage at Euclid Beach park, Cleveland, where thousands of automobile tourists spend a night or two each summer. On the right—Here are two Iowa tourists who didn't go to California, Betty Lou and "Velvet Jo." They with their parents and three brothers and sisters were headed east but stopped to spend the night at Euclid Beach park tourist camp at Cleveland. The can indicates a few nickels may be picked up by selling other things than sleeping accommodations, gasoline and oil at tourists' camps

nearby town and a wiener roast.

Mr. Wahls says the park attracts approximately one-third of the station's total business—nearly half of it during eight months when the grass is green. Through the open season the station's gallonage varies between 9000 and 10,000 gallons a month but falls to half that volume in winter. Motor oil sales hold up in good proportion to gasoline. The two pumps at the tourist camp station, averaging 150 gallons of gasoline each a day, get more business than the average of the 30 in town.

Wahls Bros. Oil Co. does not operate the station at the camp with its own employees. They keep it under strict observation but it is leased to H. L. Sarver who runs it in connection with all the other tourist service. Besides the filling station, at the entrance to the park is a tire shop and a restaurant.

The restaurant is small but modern, equipped with automatic refrigeration. Only 13 persons can eat at once but all are not expected to eat in the restaurant any way. Most of the food sold is carried to the picnic ground to augment the customer's basket lunch. A brisk business is done in coffee and cold drinks when there is a picnic in the park.

NEITHER the station nor the restaurant has been closed for 14 months. It is the only all-night service that Wahls brothers provide in Chenoa. Their other two stations close during the dead hours of the night—midnight to 4 a. m. in summer, and possibly longer in winter. The restaurant and oil station employs two men and a girl on ordinary working days and two to three extras on Sundays and holidays.

The regular help is divided into two shifts. One man and the girl work days and a man nights. The oil station and tire shop require one man's time in the daylight hours, and the girl takes care of the restaurant business. At night the one man handles the whole establishment but does not do much tire service.

Near the front of the park, close to the oil station but far enough from the road to be out of the worst of the noise and dust, Mr. Sarver has a tent for rent. He lets it out at $1 a night to travelers who are belated or caught in the rain. It is water tight, has a wooden floor and is equipped with two army cots and mattresses. Persons who rent it are supposed to have their own blankets.

Wahls brothers company is the only oil company with a bulk plant in Chenoa although three or four other companies truck gasoline in the town and maintain stations there. The firm is composed of O. F. and E. E. Wahls, both of whom are active in the business. E. E. Wahls is in charge of the bulk station and three trucks as well as the service station on the same tract of land that fronts on state highway No. 8.

O. F. Wahls operates Motor Inn, a station which the company recently acquired and remodeled near the intersection of highways 4 and 8. Besides oil and gasoline, Motor Inn has a tire store and a shop for minor motor repairs. Space has been provided and a mechanical automobile lift is being installed for greasing. It will be outside in summer in plain view of the road, and housed in winter.

Motor Inn has no picnic ground or tourist camp in connection but in the same building with the service station is a restaurant which has a reputation of being the best place to eat for miles around. It is run by Zirkle Bros., a firm operating a chain of restaurants in wayside inns. The dining room will seat only about 40 persons but special reservations are made almost nightly by groups of business men in Chenoa and nearby towns. It is said that Zirkle serves a $1.50 steak dinner that attracts trade for 50 miles.

Secretary-Treasurer of I.O.M.A. Resigns

CHICAGO, June 23.—Miss Eva Arnstein, secretary-treasurer of Independent Oil Men of America for four years, tendered her resignation to the board of trustees this week effective Aug. 1, at the latest.

Officials of the organization have not announced a successor. Miss Arnstein says she will rest a while before she seeks another business connection.

All of Miss Arnstein's business life has been in the petroleum industry, beginning in 1918 in Chicago. In 1922 C. L. Maguire, of the Northland Oil Co., loaned her from his organization to that of the National Petroleum Marketers Association of which he was a director. L. V. Nicholas, president of the N. P. M. A., put her in charge of the books and finally made her guardian of the funds without title. She was elected secretary-treasurer in 1924 and was re-elected four times.

TULSA—Leland E. Fiske, formerly head of the tax and accounting departments of the Wiser Oil Co. and associated companies, announces the opening of an office as certified public accountant and valuation engineer at 216 Atlas Life building, Tulsa. Mr. Fiske was at one time oil and gas valuation engineer in the income tax unit of the federal treasury department and in addition to a general accounting practice will specialize in oil property taxation and appraisal.

Col. Stewart Indicted For Perjury

(By Telegraph)

WASHINGTON, June 25.—As was expected for many weeks Col. Robert W. Stewart, chairman of the board of the Standard Oil Co. of Indiana, has been indicted on allegations of perjury in connection with testimony he gave Feb. 2 to the Senate Committee as to his knowledge concerning Continental Trading Co., bonds and their disposition.

The indictment was made public today. Its existence was known for some time before its promulgation.

There are three counts. The first alleges Col. Stewart denied knowledge of the bonds; the second that he had denied he personally had received any; the third that he denied having had any conversation or knowledge that would lead him to believe that any of the bonds had been received by any person or organization, political or otherwise.

Col. Stewart, upon being informed of the return today of the indictment, made the following statement in Chicago:

"Of course I greatly regret the making of this charge. It is plainly inspired by the political investigators of the senate committee who have so long been of the opinion that in a presidential campaign year private right and personal reputations are of no moment.

"I am sure the public will understand that this indictment was returned as a result of a star chamber proceeding where I was not heard either personally or by counsel. Only those who wanted this indictment were heard by the grand jury. Not one word of evidence was received on my side of this matter.

"I shall instruct my counsel to ask the earliest possible trial of this case. I am going to Washington at once to meet this new charge. I am confident of acquittal."

Skelly Jobbers Visit Headquarters

ELDORADO, Kan., June 23.—Several jobbers handling Skelly Oil Co.'s products have been visiting the company's headquarters recently. Among those who "dropped in" during May were: S. C. Tolbert, Tolbert Oil Co., Concordia, Kan.; R. L. Brooks and Robert Howell, H. & B. Oil Co., Croft, Kan.; J. Mitchell Everson, Skelly salesman from Nebraska, who brought along Mr. Burt and Mr. Offmeyer, of Alma, Neb.; L. H. Korp, Korp's Oil & Gas Service, Sandusky, O.; E. B. Frank, E. B. Frank Oil Co., Wichita, Kan.; E. J. Smith, High Grade Oil Co., Alva, Okla., and Sam Reusser, Farmers Oil Co., Mound Ridge, Kan.

3 Finished Products Cut From Natural Gasoline at Skelly's Schafer Plant

By J. C. Chatfield
N. P. N. STAFF WRITER

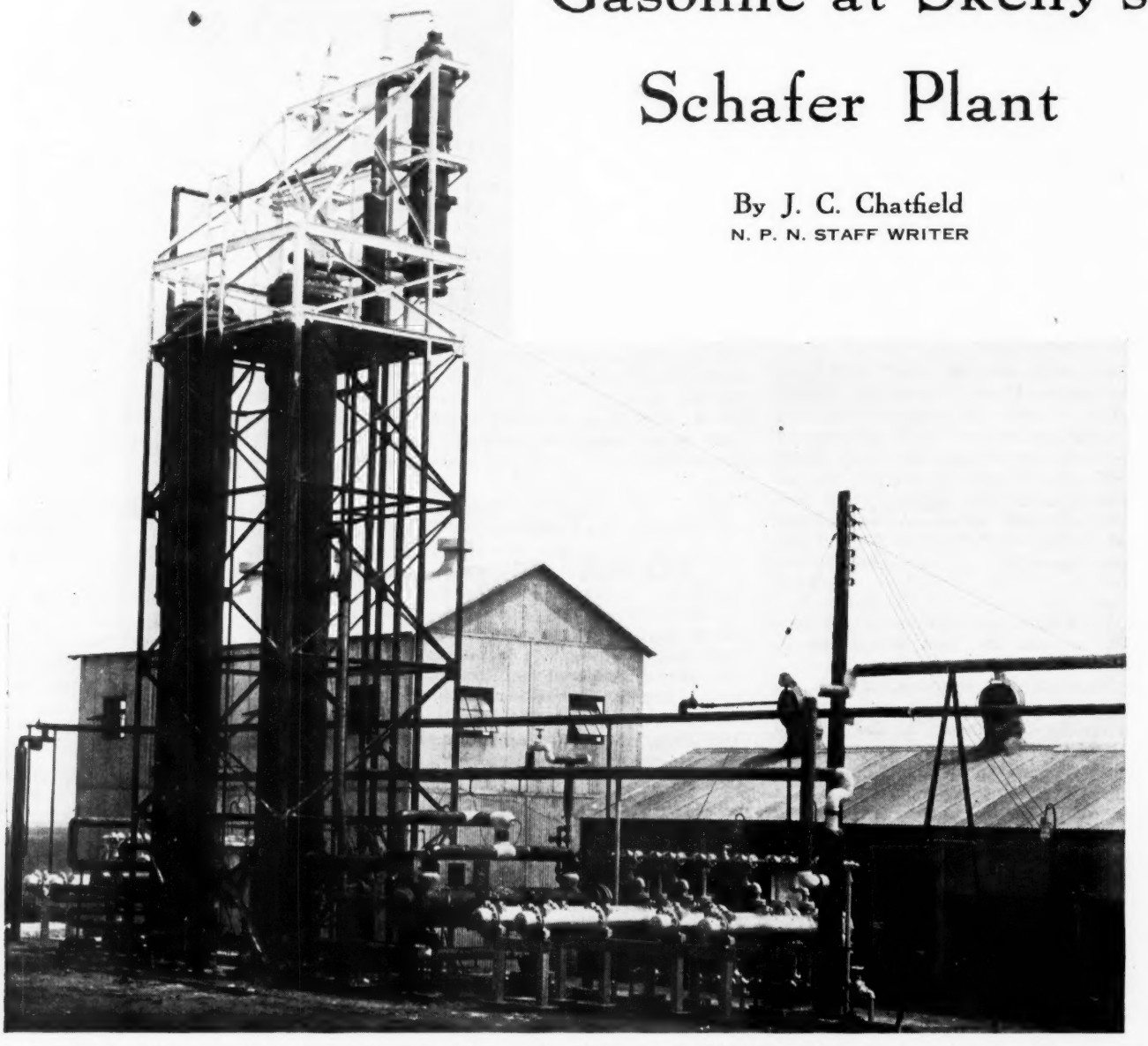


Fig. 1—Natural gasoline fractionating plant of the Skelly Oil Co. on the Schafer ranch. This photograph was taken before the plant was completely finished. It is now enclosed in an individual building

AMARILLO, June 23

THE SKELLY OIL CO. is making three finished products direct from the fractionating equipment in connection with its gasoline plant on the Schafer ranch in the Panhandle field of Texas. The fractionating plant has been designed to enable the operators to change the character of the products at will; to produce commercially pure hydrocarbon fractions such as propane and butane and highly stable gasolines suitable for direct use in airplane or automobile motors.

It may be arranged also to produce blending gasolines of standard grades such as AA and BB with a by-product of liquefied petroleum gas.

The fractionating plant is of the high pressure type with a temperature gradient maintained in the columns by means of a reboiler at the base and cold reflux at the top. It is of the double column type which has been developed commercially within the past year as the industry has made progress in improving the quality of its products.

In a second article, to be published in an early issue of National Petroleum News, Mr. Chatfield will describe the natural gasoline absorption plant on the Schafer lease which produces the raw product for the fractionating plant which was described in the article herewith.

A bottling plant has been installed in connection with the fractionator for loading pressure cylinders with the liquefied petroleum gas which is being marketed by the company under the trade name "Skelgas."

An accompanying flow diagram, Fig. 2, will illustrate the method of operation of the fractionating plant which is operated separately from the oil absorption plant.

Raw gasoline made by the absorption plant is charged into the first tower of the fractionator over about the eighth bubble plate. The point of entry, however, may be changed

by the operator if desirable. The raw feed is heated to about 210 degrees Fahr. before entering the tower by passing through a series of two heat exchangers counter current to the product being withdrawn from the first tower.

Condensate which falls to the bottom of the first tower is withdrawn into a steam heated reboiler kept at a temperature of about 310 degrees Fahr. Vapors evolved in the reboiler at this temperature are reintroduced into the first column below the bottom plate and pass upwards, counter current to the descending condensate.

Unvaporized gasoline in the reboiler is withdrawn to storage through the two heat exchangers previously mentioned and a second series of coolers through which water is pumped to bring the gasoline down to 80 degrees Fahr. before it is run to storage.

The rate at which this gasoline is withdrawn from the reboiler is regulated by a liquid level control.

Pressure is released on the gasoline after it has been cooled. The pressure throughout the system is held at about 250 pounds per square inch. This pressure is a constant factor but temperatures throughout the system are varied to suit the products desired except that the 310-degree Fahr. temperature at the base of the first column is considered the most desirable to give the best fractionation.

Vapors from the top of the first column are passed through a reflux condenser of the tubular, water-cooled type. Condensate from this condenser is trapped back over the top tray of the bubble tower. Vapors are conducted to the second tower and charged over about the seventh plate, the exact point of introduction depending on the products being made.

A second reboiler draws liquid from the bottom of the second tower for the vaporization of any liquefied petroleum gases which might have been entrained with condensate falling through the tower. The temperature at which this reboiler is held depends on the product which is being withdrawn.

In one type of operation Grade AA is withdrawn from the first column. Grade BB from the second column and "Skelgas" or commercial propane from the top of the second column. In another type of operation a butane-free gasoline may be withdrawn from the first column, butane from the bottom of the second column and "Skelgas" from the top.

A liquid level control is provided to govern the rate at which the secondary product is withdrawn in the same manner as in the first column. Two coolers bring the product down to about 80 degrees Fahr. before it is passed to storage.

Vapors from the top of the second column pass through a reflux condenser as in the case of the first column. Condensate is trapped back to the top plate and vapors are released to residue gas through a pressure relief valve. This second reflux condenser is kept at a temperature of 80 to 85 degrees Fahr.

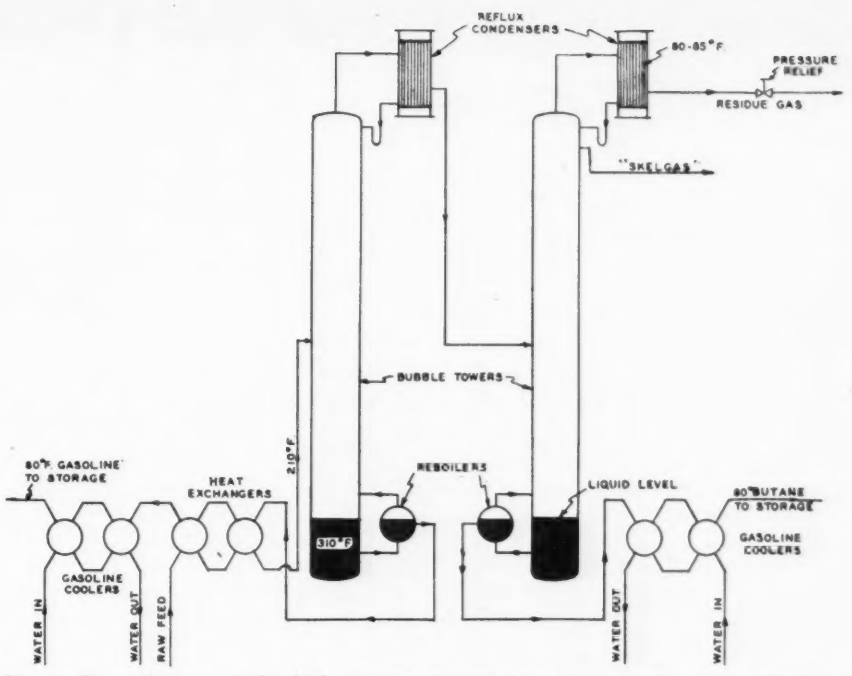


Fig. 2—Flow diagram of the high pressure fractionating plant of the Skelly Oil Co. at Skellytown, Texas

"Skelgas" is withdrawn from the top plate of the second tower and charged to pressure storage for treating and bottling.

In developing "Skelgas" Emby Kaye, general superintendent of Skelly's gasoline department, has insisted that every precaution be taken that the product shall be satisfactory so that customers will experience no difficulties which would hinder development of a market for the by-product.

IN THE first place, the product from the top plate of the second tower is steamed slowly to weather out any gases lighter than propane which might tend to create a pressure in the shipping containers greater than that exerted by propane. The operation of the tower is controlled closely so that no undue percentage of butane will remain in the product which might not vaporize readily at low temperatures in the northern states.

After the product is thoroughly weathered it is treated to eliminate any hydrogen sulfide which might be in the liquid to cause annoyance to customers burning it in an open fire such as in cook-stoves.

The Skelly Oil Co. has developed a new type of valve for the standard steel drums used in shipping "Skelgas." The valve insures a proper outage in the drums to take care of expansion during shipment. The valve is so arranged that the instant the liquid level in a drum reaches a proper height a small stream of "Skelgas" emerges from the relief opening through which gas is vented as the drum is being filled. A second check is by accurately weighing each drum before and after filling.

The Skelly valve is equipped with a fracture disk which is an added safety feature over the soft metal fusion plugs in the drums to operate at excessive temperatures.

Work on Cities Service Gas Line Rushed

TULSA, June 23.—Work is to start immediately on the 132-mile extension of the Cities Service Gas Co.'s lines connecting its Panhandle gas reserves with the Kansas City area. The announcement of the project was made from the Bartlesville office of the Empire companies. The extension, from Wichita to Ottawa, Kans., will be a combination coupled and welded 20-inch line, similar to that from Pampa, Texas, to Wichita.

The Oklahoma Construction Co., of Dallas, Texas, which was awarded the contract, is shipping its equipment to the right of way. The first shipment of pipe for the line has been made. To insure fulfillment of the contract, which calls for the work to be done 86 calendar days after the arrival of first shipment of pipe, the contractors are putting three main line crews and one river-crossing crew in the field.

NEW YORK, June 23.—E. M. Clark, vice-president of the Standard Oil Co. of New Jersey, accompanied by Mrs. Clark and daughter, sailed on the S. S. Majestic June 22 for a six weeks' business trip in Europe.

Court Defines Actual and Open Possession of Lease

CLEVELAND, June 23

THE Ohio Supreme court has decided in favor of Pure Oil Co. a controversy over a gas lease in Guernsey county, Ohio, in which was contested the legality of a witness' signature and what constituted "open possession" of the lease.

The lease was granted in 1920 by Fred L. Turner to James A. Deeds of Pittsburgh and acquired by Pure Oil Co. from the Deeds estate in 1923. The lease was for 10 years with stipulation that a well was to be commenced within six months after its execution. This well was dry.

Deeds, his estate and Pure Oil Co. paid the specified rentals on the lease until in 1926 when Turner refused to accept the rental. In June that year Pure Oil contracted with the Ohio Fuel Supply Co. to sell the latter its gas production including that from the Turner lease, according to the syllabus in the case.

The Ohio Fuel located a well late in June that year and hauled in material for a rig. On June 30 Turner executed a lease to Milton H. Turner, which lease the Pure Oil Co. attacked. Milton Turner was the defendant in the Pure Oil action.

The court of common pleas gave Pure title to 25 acres about the Ohio Fuel well but gave Milton Turner title to the rest of 158 acres covered in the original lease. The court of appeals found in favor of Pure Oil for the entire tract but after a rehearing gave Milton Turner the title. The Supreme court finally quieted the title in Pure Oil.

Milton Turner contended that the Ohio Fuel well had been started in an isolated thicket and drilled to completion as a gas well but he did not know possession had been taken of the lease. Concerning this point Judge Florence Allen, the woman justice, decided:

"We think that where possession is actual and open upon the part of the lessee, it is actual and open even if the person who contests the possession happens to be in California, so he cannot see it, or happens to be on the other side of a wooded tract, so that he does not see it.

"There is no testimony in the record whatever of concealment, the doing of the acts is admitted, and therefore we hold that actual and open possession was established in this case. The acts of possession need not extend to the entire tract in order to charge the purchaser with notice of the adverse claim, such acts as to part being regarded as sufficient to raise the duty of inquiry as to the extent and source of the possessor's rights."

Turner alleged that the name of a witness had been forged to the lease. This witness, a notary public whose clerk was the other witness, admitted the signature on the contract held by Pure Oil probably was his signature. The lease as recorded did not contain his name.

Edward F. Claggett, manager of Pure Oil Co.'s Ohio producing property, said the lease had not been changed since it came into possession of his company. Fred Turner denied he ever had acknowledged the signature but the court said, "It is highly significant that Mrs. Turner was never called to the stand."

The court added: "At most then this lease is defective but not forged, and, if defective, its effect can be validated and its defects cured, by acts of actual and open possession upon the part of the Pure Oil Co."

The case was handled for Pure Oil Co. by E. L. Taylor, A. C. Harvey, H. M. Myers, and John S. Taylor.

Heil Company Takes Over Hydro Hoist Co.

MILWAUKEE, June 25.—Consolidation of the Heil Co., manufacturer of oil marketing equipment, with the Hydro Hoist Co., a subsidiary, has been announced by Clement C. Smith of the former company. Mr. Smith is now chairman of the board of directors of the consolidated company.

J. P. Heil, formerly vice president and treasurer of the Heil Co., is president and treasurer of the consolidated company. Herman W. Falk is vice president and W. M. Chester, secretary. Besides these officers, the board of directors includes George P. Miller and William G. Thwaites.

The Heil company makes dump bodies, storage tanks for petroleum products, gasoline truck tanks and other oil industry equipment, as well as equipment for other industrial uses. In addition to its factory buildings here the company has branch factories at Boston, New York, Philadelphia, Cleveland, Detroit and Chicago, and maintains distributors throughout this country and abroad.

LOS ANGELES, June 23.—Robert Allan, manager of the Pacific Petroleum Co., accompanied by his wife, departed June 22 on a vacation trip that will take him to various eastern points and into Canada. He plans to return the latter part of July.

M. W. Jamieson, Warren Refiner, is Dead

WARREN, Pa., June 26—M. W. Jamieson, proprietor of the Warren Refining Co., a veteran among refiners of Pennsylvania oil, died in Warren June 22. His funeral and burial were here June 25.

Mr. Jamieson was virtually born to the oil industry July 16, 1861. His father, Hugh A. Jamieson, for many years was proprietor of the Warren Refining Co., and was the first president of the National Petroleum Association.

When the elder Jamieson died in 1907 the refining business was taken over by M. W. Jamieson and his brother, C. W. Jamieson, who died in 1912. Since 1912 the business has been operated by M. W. Jamieson.

The main refinery of the Warren Refining Co. at North Warren burned in 1926 and afterward a bright stocks plant was operated until a few months ago, when Mr. Jamieson's health failed.

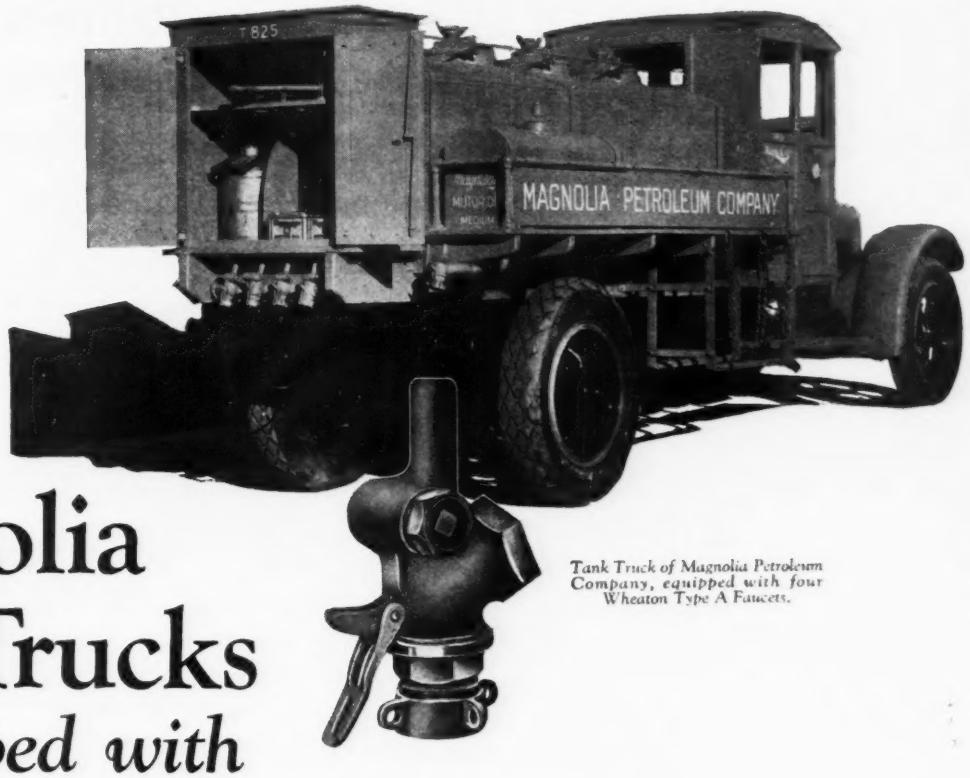
Mr. Jamieson's son, L. C. Jamieson, of the Viking Oil Corp., bright stock manufacturer, is the third generation of the family to engage in the refining business in Warren. L. C. Jamieson is vice-president and general manager of the Viking company. Another son is Hugh C. Jamieson, who is with the North American Water Co. at Harrisburg, Pa. A daughter is Mrs. Edward Savage of New York. Mrs. M. W. Jamieson also survives.

Shipping Board Man is Oil Traffic Manager

TULSA, June 25.—Ross P. Amo has been made traffic manager of the White Oak Refining Co. and the Gulf States Terminal & Transport Co., Inc., according to an announcement by Victor H. Smith, president. Mr. Amo will maintain his offices in Tulsa.

For the past seven years Mr. Amo has been with the U. S. Shipping board as district traffic manager. Prior to that he was located at Seattle for eight years where he was engaged with steamship operators and merchandise and wharf companies. His experience in steamship transportation matters will be valuable in connection with his work for the Gulf States, particularly since that organization recently was appointed agent for 24 passenger and freight steamship lines in this territory.

ELDORADO, Kan., June 25.—A business trip took E. A. Todd, chief chemist of the Skelly Oil Co., and R. M. Ward, in charge of sales at Minneapolis, to Detroit during June.



Tank Truck of Magnolia Petroleum Company, equipped with four Wheaton Type A Faucets.

Magnolia Tank Trucks *are equipped with* WHEATON FAUCETS

Type 50 Wet Hose Auto-Filling Faucet

Type 60 Filling Pipe Cap

MANY years ago the Magnolia Petroleum Company did what Wheaton always wants every *non*-user of Wheaton Faucets to do—namely, put them through the most exacting TESTS, and let the results determine whether or not Wheaton Faucets are adopted. Let those tests be in practical every-day service or in the laboratory—Wheaton Faucets invariably prove their excellence.

This so-called "sample method" of selling has been the Wheaton policy for nearly twenty years, and it has resulted in Wheaton Faucets being by far the most extensively used faucets on the market today. Such is the evidence of Wheaton *superiority!*

Order a sample of any Wheaton Product—subject to return for credit or refund. That is the way for you to find out for *yourself* just how excellent Wheaton Products are. A catalog will be sent gladly upon request.

A. W. WHEATON BRASS WORKS, NEWARK, N. J.

Type 0 Barrell Faucet

Type 25 Loading Valve

Empire Brass Mfg. Co., Ltd., London, Ontario—Canadian Manufacturers & Distributors

Wheaton

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended June 22 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended June 22	Total Week Ended May 25
Plants Reporting	12	28	28	12	80	80
Crude Capacity (bbls.)	92,000	157,200	127,600	54,900	431,700	416,600
Cracking Capacity	30,700	52,600	17,200	22,700	123,200	122,200
Da. Av. Crude Runs	66,624 + 0.6	113,232 — 3.5	99,529 + 27.2	54,551 — 6.3	333,936 + 4.3	315,482
Da. Av. Other Oils	6,442 + 0.05	3,781 — 39.2	7,666 + 15.7	105 +176.3	17,994 — 6.9	23,365
GASOLINE—Gallons						
Stocks, June 15	15,560,000	44,312,000	15,949,000	4,313,000	80,134,000	86,872,000
Prod. 6-15 to 6-22	9,851,000 + 2.7	18,812,000 — 7.6	11,037,000 + 24.5	5,012,000 — 3.3	44,712,000 + 1.6	43,399,000
Ship. 6-15 to 6-22	10,260,000 + 15.6	21,006,000 + 8.1	9,874,000 + 14.5	5,486,000 + 9.9	46,626,000 + 11.2	48,584,000
Stocks, June 22	15,151,000 — 2.6	42,118,000 — 5.0	17,112,000 + 7.3	3,839,000 — 11.0	78,220,000 — 2.4	81,687,000
Ratio Sales to Prod.	104.2%	111.7%	89.5%	109.5%	104.3%	111.9%
KEROSENE—Gallons						
Stocks, June 15	5,953,000	5,118,000	1,493,000	1,175,000	13,739,000	10,432,000
Prod. 6-15 to 6-22	2,328,000 + 19.3	2,238,000 — 8.3	1,339,000 — 7.1	424,000 — 33.0	6,329,000 — 2.1	6,456,000
Ship. 6-15 to 6-22	1,635,000 + 20.5	2,093,000 + 4.8	1,332,000 + 0.9	615,000 + 58.1	5,675,000 + 12.1	6,068,000
Stocks, June 22	6,646,000 + 11.6	5,263,000 + 2.8	1,500,000 + 0.5	984,000 — 16.3	14,393,000 + 4.8	10,820,000
Ratio Sales to Prod.	70.2%	93.5%	99.5%	145.0%	89.7%	94.0%
STOVE DISTILLATE—Gallons						
Stocks, June 15	1,932,000	2,254,000	429,000	61,000	4,676,000	3,736,000
Prod. 6-15 to 6-22	520,000 + 17.6	305,000 — 7.6	137,000 — 23.0	99,000 + 1.0	1,061,000 + 1.2	876,000
Ship. 6-15 to 6-22	532,000 +129.3	316,000 + 8.2	71,000 — 68.6	148,000 + 55.8	1,067,000 + 26.3	523,000
Stocks, June 22	1,920,000 — 0.6	2,243,000 — 0.5	495,000 + 15.4	12,000 — 80.3	4,670,000 — 0.1	4,089,000
Ratio Sales to Prod.	102.3%	103.5%	52.8%	149.5%	100.6%	59.7%
GAS OIL—Gallons						
Stocks, June 15	9,444,000	37,027,000	1,646,000	5,749,000	53,886,000	47,174,000
Prod. 6-15 to 6-22	1,637,000 — 12.9	2,991,000 + 7.2	1,393,000 + 90.0	2,007,000 — 3.8	8,028,000 + 7.2	6,927,000
Ship. 6-15 to 6-22	1,772,000 + 77.2	2,144,000 +1500.0	1,043,000 — 0.3	1,655,000 — 17.5	6,614,000 + 58.0	6,885,000
Stocks, June 22	9,309,000 — 1.4	37,874,000 + 2.3	1,996,000 + 21.3	6,101,000 + 6.1	55,280,000 + 2.6	47,216,000
Ratio Sales to Prod.	108.2%	71.7%	74.9%	82.5%	82.4%	99.4%
FUEL OIL—Gallons						
Stocks, June 15	18,830,000	44,202,000	40,980,000	20,394,000	124,406,000	110,316,000
Prod. 6-15 to 6-22	7,322,000 + 3.2	8,429,000 + 0.8	15,279,000 + 32.6	7,837,000 — 7.7	38,867,000 + 9.6	36,273,000
Ship. 6-15 to 6-22	6,485,000 — 8.3	6,983,000 + 6.1	6,583,000 — 53.3	8,736,000 + 3.3	28,787,000 —20.5	31,049,000
Stocks, June 22	19,667,000 + 4.4	45,648,000 + 3.3	49,676,000 + 21.2	19,495,000 — 4.4	134,486,000 + 8.1	115,540,000
Ratio Sales to Prod.	88.6%	82.8%	43.1%	111.5%	71.1%	85.6%

Gasoline Produced by Various Methods, Week Ended June 22

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,393,000	64.9	12,927,000	68.7	8,480,000	76.8	2,348,000	46.8	30,148,000	67.4
Cracked	2,815,000	28.6	4,878,000	25.9	1,873,000	17.0	2,269,000	45.3	11,835,000	26.5
Natural	643,000	6.5	1,007,000	5.4	684,000	6.2	395,000	7.9	2,729,000	6.1
Total	9,851,000		18,812,000		11,037,000		5,012,000		44,712,000	

+ or — columns are % change from previous week.

Heavy Gasoline Shipments Cause Draft on Stocks

Staff Special
TULSA, June 26

GASOLINE shipments from 80 Mid-Continent refineries totaled 46,626,000 gallons in the week ended June 22, an increase over shipments in the week ended June 15 of almost 5,000,000 gallons according to weekly operations figures gathered by NATIONAL PETROLEUM NEWS.

Production was increased 713,000 gallons to 44,712,000 gallons. Stocks were reduced approximately 2,000,000 gallons to 78,220,000 gallons.

All fields except north and central Texas made substantial reductions in gasoline stocks. The Texas refiners boosted crude runs 20,000 barrels daily average, or 27 per cent, to a daily average of 99,529 barrels. Gasoline production accordingly went up 2,000,000 gallons while shipments moved up only 1,250,000 gallons.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended June 22. Change in stocks figured from May 25.

GASOLINE

	Gallons
Production	175,300,000
Shipments	178,767,000
Net change in stocks	— 3,467,000
Ratio sales to production	102.0%

KEROSENE

	Gallons
Production	25,234,000
Shipments	21,661,000
Net change in stocks	+ 3,573,000
Ratio sales to production	85.8%

STOVE DISTILLATE

	Gallons
Production	3,976,000
Shipments	3,395,000
Net change in stocks	+ 581,000
Ratio sales to production	85.4%

GAS OIL

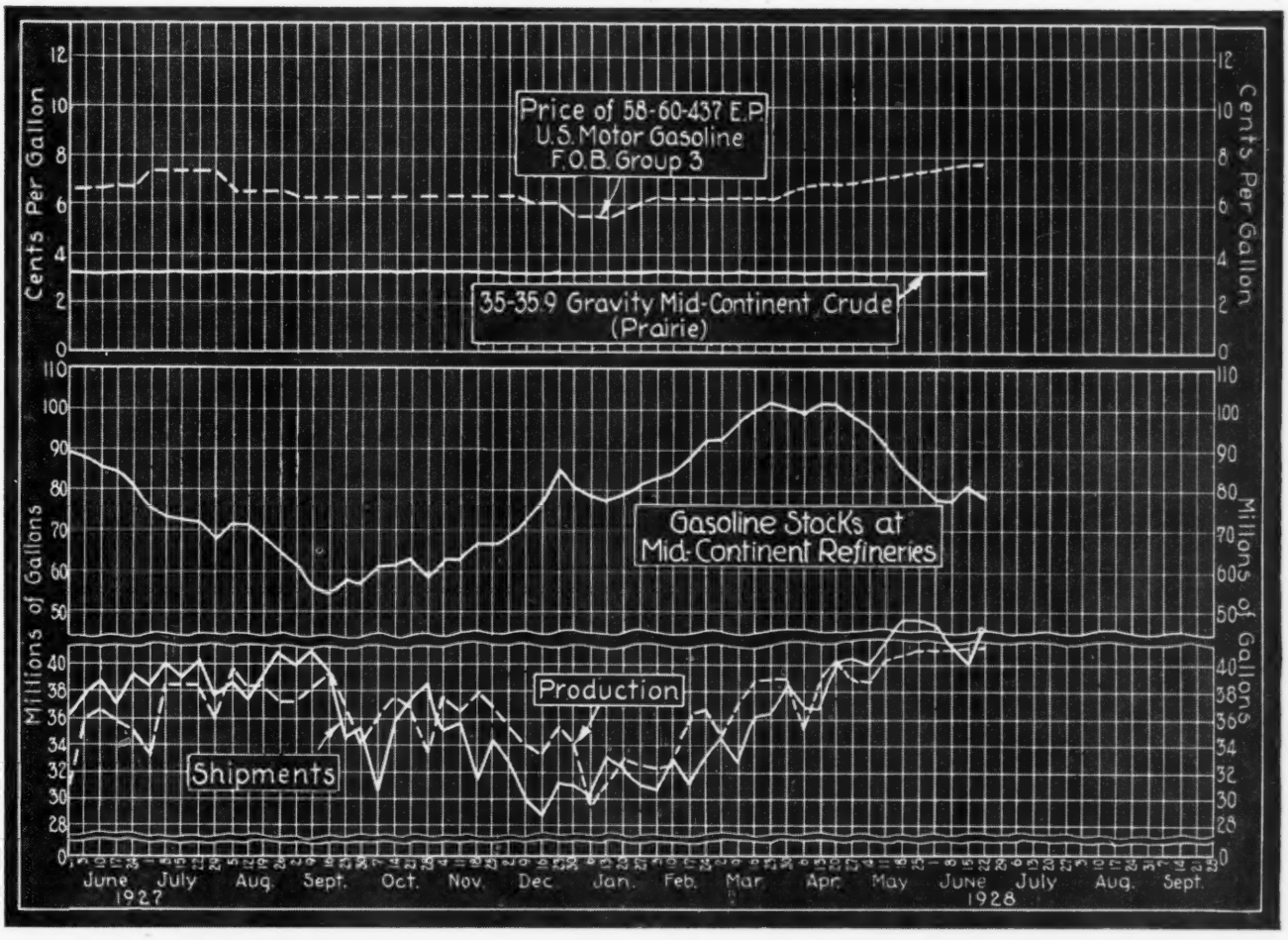
	Gallons
Production	33,431,000
Shipments	25,367,000
Net change in stocks	+ 8,064,000
Ratio sales to production	75.9%

FUEL OIL

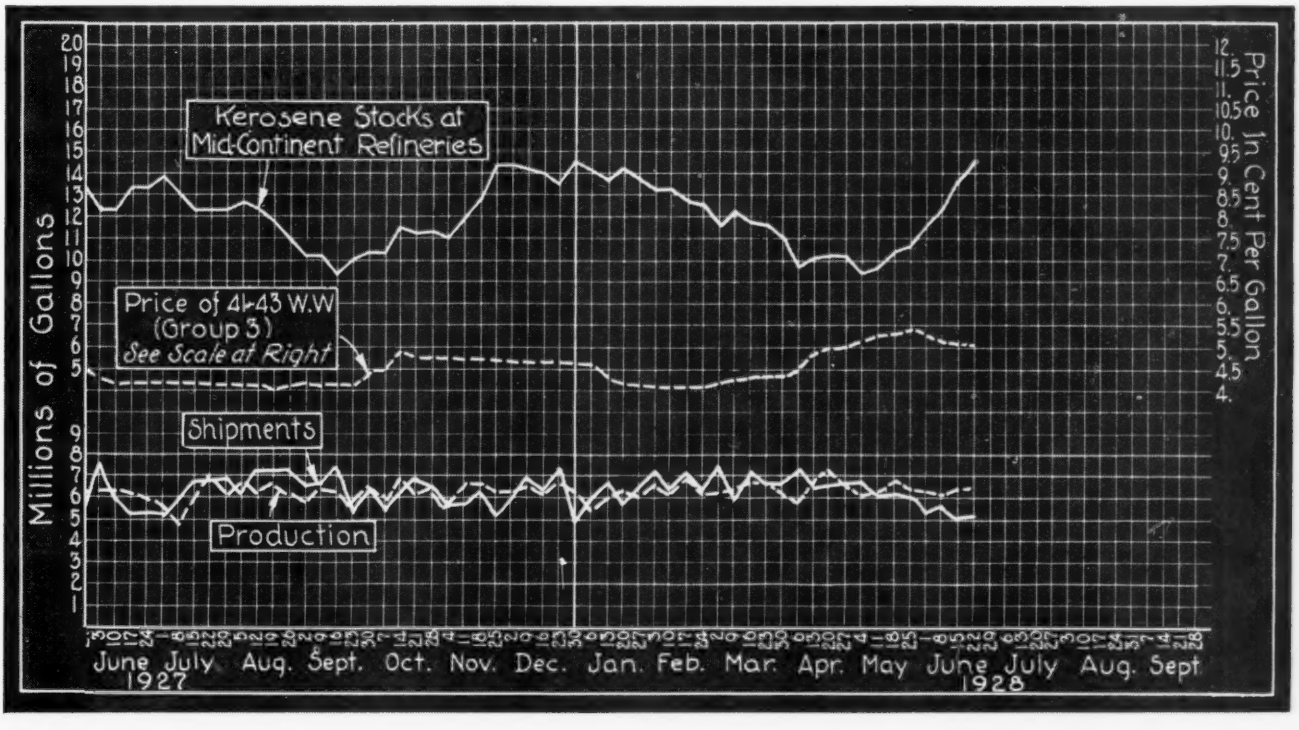
	Gallons
Production	147,998,000
Shipments	129,052,000
Net change in stocks	+ 18,946,000
Ratio sales to production	87.2%

Barometer of Mid-Continent Refinery Market—Week Ending June 22

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News

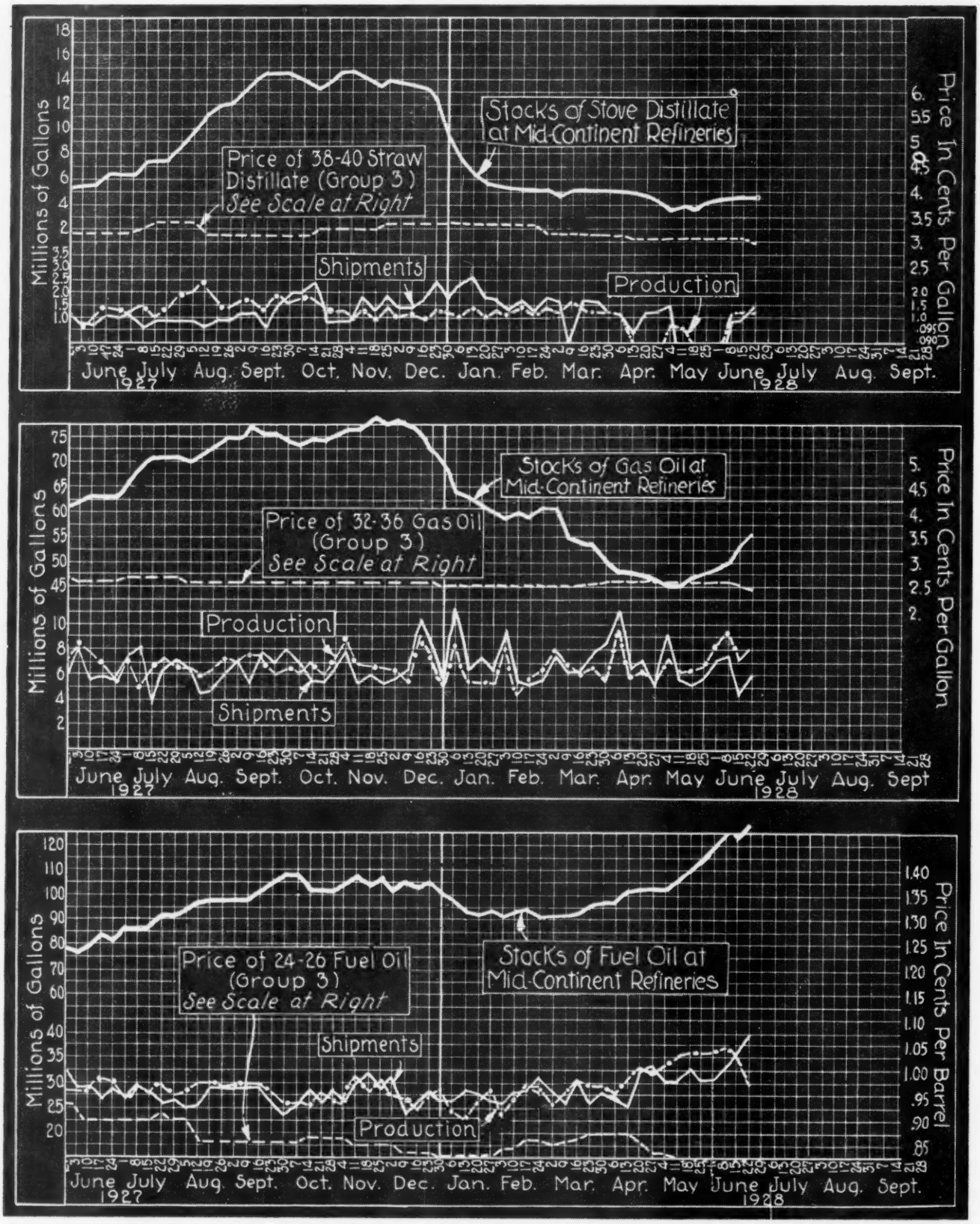

Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page

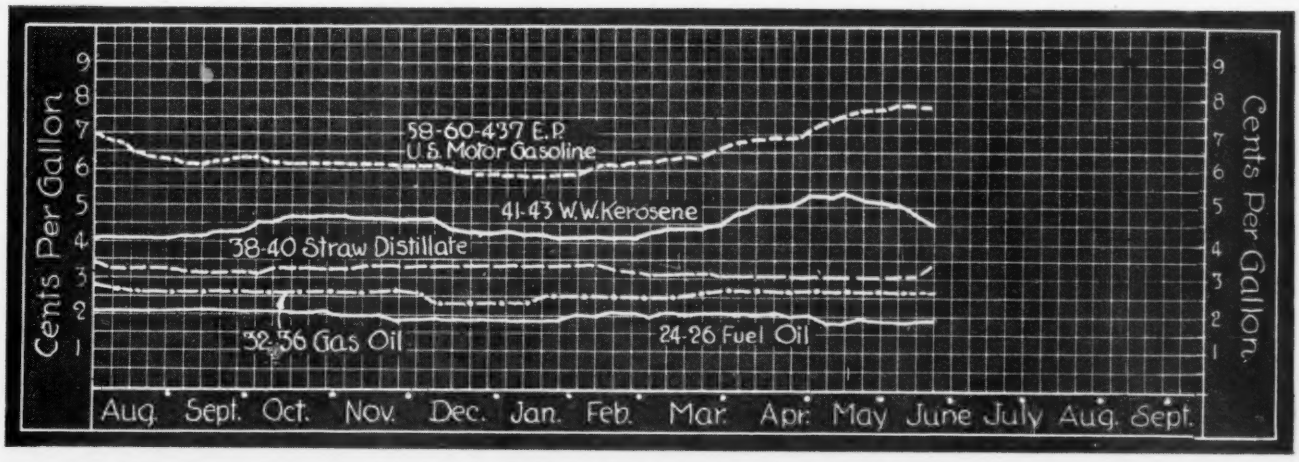

Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W (Group 3) See Scale at Right
Millions of Gallons
Price In Cent Per Gallon
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Barometer of Mid-Continent Refinery Market—Week Ending June 22

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P.
U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this Issue

Stocks were increased in that state 1,160,000 gallons, contrasted with a reduction in other fields of approximately 3,000,000 gallons.

Crude runs in Kansas were virtually unchanged. Oklahoma refiners reduced their runs 4,000 barrels daily average. Arkansas and Louisiana refiners reduced their runs almost 3,690 barrels daily average. Crude runs in the entire field were 333,936 barrels daily average, an increase of approximately 14,000 barrels last week. Other oil charges were reduced approximately 1,000 barrels daily average.

The increase in crude runs probably can be attributed in part to renewed export activity. Exporters bought a large quantity of gasoline.

Kerosene production was virtually unchanged. Shipments increased approximately 500,000 gallons. Stocks of kerosene June 22 totaled 14,393,000 gallons.

Shipments of distillates increased slightly. Production was steady, almost balancing shipments. Stocks were lowered in all districts except Texas. Stocks of distillate on hand June 22 totaled 4,670,000 gallons, compared with 6,383,000 gallons a year before.

Gas oil stocks continued to climb. Production was up slightly and shipments increased more than 2,000,000 gallons but stocks rose 1,400,000 gallons to 55,280,000 gallons.

Fuel oil stocks were increased by 10,000,000 gallons due in part to an increase of 3,600,000 gallons in Texas while shipments fell 7,500,000 gallons. Texas stocks increased 8,700,000 gallons. Arkansas-Louisiana refiners moved more than their production.

Gulf Coastal Lubes Active

HOUSTON, June 25.—Continued strength is noted in Gulf Coastal lubricant market, with some further price adjustments upward. Demand is increasing for spot shipments and contract movements are also gaining.

California Oil Stocks Reduced in May

LOS ANGELES, June 23.—Stocks of heavy crude, including all grades of fuel, decreased 508,623 barrels in California during May, according to the report compiled by the San Francisco office of the American Petroleum Institute. This indicates that the shut-in movement in the state is bearing fruit, as had been expected.

During May, stocks of refined crude increased 189,486 barrels, while gasoline stocks were reduced 447,564 barrels. Total stocks of all products in Pacific Coast trade territory were reduced 562,981 barrels, or a total net decrease of 336,983 barrels for the first five months of 1928.

California produced a total of 19,331,866 barrels of crude oil in May, daily average of 623,609 barrels. This was an increase of 14,252 barrels daily over the previous month. During May 64 wells were completed with total initial production of 66,117 barrels.

Of this total, Long Beach was credited with 29 new wells, with 47,856 barrels of new production. Nineteen dry holes were abandoned during May, while 38 old producers were plugged and abandoned. At end of May, 450 wells were drilling in the state, against the same number at the end of April.

Weighted Average Prices Oklahoma Market

On Feb. 6, 1928, National Petroleum News adopted the policy of publishing weighted average prices on the four more important gasolines in Oklahoma, instead of a range in prices. These weighted averages together with the number of cars of each grade sold, as of Monday, June 25, are published below. The figures are not available for publication in the refinery market table on page 114 of this issue.

	Total Cars	Weighted Average
58-60 U. S. Motor, 437 e. p.	97	7.9304
60-62, 437 e. p.	12	7.9271
60-62, 400 e. p.	5	8.1250
64-66, 375 e. p.	7	8.3036

Note: Above prices are in cents per gallon, f.o.b. Oklahoma refinery in tank car lots.

Texas Oil Land Titles Confirmed by Court

(By Telegraph)

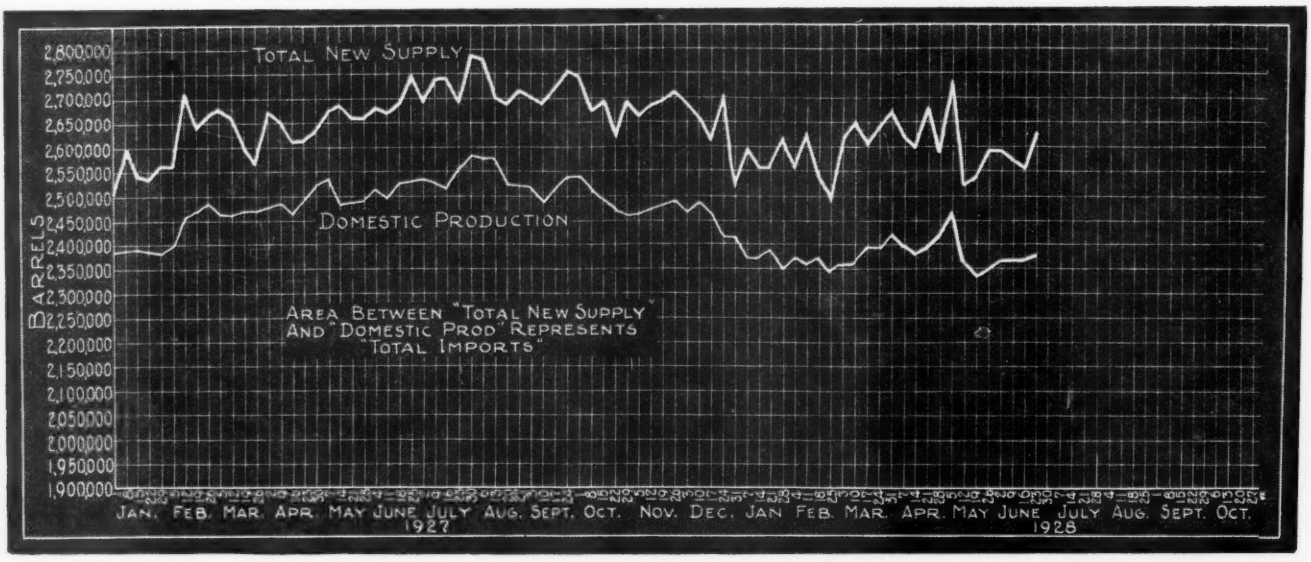
HOUSTON, June 26.—Supreme Court of Texas, in an opinion handed down June 25 at Austin, upheld all the major laws used by the state in administering the selling and leasing of public school and university lands, which laws have been under attack for more than a year.

Producing properties worth uncounted millions in the Yates field of Pecos county, the University field of Crane county and elsewhere in west Texas were cleared of title clouds by the court's decision.

The court opinion confirmed title of present holders to more than 2,000,000 acres of University of Texas lands and about 5,000,000 acres of public school lands.

The relinquishment act was sustained, by which the state undertook to transfer one-sixteenth royalty interest to the surface owner of school lands in consideration of his acting as an agent of the state in securing development of the seven-eighths working interest. The state owns a one-sixteenth reserved interest in such lands, but suits brought in its behalf sought recovery of all mineral rights on the grounds of unconstitutionality of the reliquishment act.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	June 23	June 16
Production east of Rockies	**1,730,050**	**1,716,450**
Increase		**13,600**
Total production in U. S.	**2,375,550**	**2,358,450**
Increase		**17,100**
Crude oil imports	**261,857**	**210,286**
Increase		**51,571**
Total crude supply	**2,637,407**	**2,568,736**
Increase		**68,671**

OKLAHOMA

	June 23	June 16
North Braman	2,900	2,900
South Braman	1,450	1,500
Blackwell	3,500	3,400
Hubbard	2,700	2,750
Thomas	1,250	1,250
Tonkawa	13,900	14,100
Garber	8,600	8,500
Burbank	31,650	32,100
Osage, outside Burbank	27,550	28,300
Watchorn	700	700
Cushing	19,850	20,000
Yale Jennings	8,500	8,950
Davenport	2,000	2,100
Bristow-Slick	22,200	22,450
North Okmulgee	15,200	15,350
Lyons-Deaner	6,450	6,500
Stroud	1,150	1,100
Cromwell	9,700	9,750
Papoose	4,300	4,250
Wewoka	6,550	6,550
Seminole	51,350	51,300
Bowlegs	59,600	62,700
Searight	13,100	13,850
Little River	43,000	43,750
Earlsboro	85,150	87,850
Duncan district	7,750	6,950
Graham	5,550	5,700
Fox	1,650	1,700
Healdton	14,050	13,900
Hewitt	9,450	9,300
Scholem Alechem	14,750	14,900
Others	96,700	94,550
Total Oklahoma	592,200	598,950
Decrease		6,750

KANSAS

	June 23	June 16
Greenwood County	28,650	29,000
Florence-Covert	1,250	1,350
Peabody-Elbing	3,400	3,600
Eldorado-Towanda	13,800	14,000
Augusta-Fox-Bush	3,900	4,050
Rainbow Bend	1,550	1,600
Russell	3,500	3,500
Churchill	11,150	11,700
Oxford	12,000	11,950
Others	25,000	24,700
Total, Kansas	104,200	105,450
Decrease		1,250

NORTH LOUISIANA

	June 23	June 16
Homer	4,350	4,400
Haynesville	6,250	6,300
Caddo, light	10,050	9,650
Caddo, heavy	3,200	3,300
De Soto, Red River	4,150	4,200
Elm Grove	550	550
Bellevue	900	900
Cotton Valley light	800	1,300
Cotton Valley heavy	4,100	4,100
Urania	7,050	7,200
Pleasant Hill	550	600
Total, North Louisiana	41,950	42,500
Decrease		550

ARKANSAS

	June 23	June 16
El Dorado	5,300	5,300
Champagnolle	25,650	30,100
Smackover, light	7,750	7,600
Smackover, heavy	58,350	58,200
Stephens	1,000	1,050
Nevada	1,600	1,700
Lisbon	2,050	2,100
Others	100	100
Total, Arkansas	101,800	106,150
Decrease		4,350

TEXAS (Outside Gulf Coast)

Panhandle District

	June 23	June 16
Hutchinson County	37,200	37,050
Carson County	6,700	6,850
Gray County	21,200	20,050
Wheeler County	1,000	1,050
Others	250	150
Total, Panhandle District	66,350	65,150
Increase		1,200

North Texas

	June 23	June 16
Burkburnett	10,450	10,200
Electra	13,050	13,300
Iowa Park and K-M-A	3,900	3,800
Wilbarger	17,900	16,500
Archer County	21,500	21,250
Montague-Cooke	11,950	12,000
Others	650	650
Total, North Texas	79,400	77,700
Increase		1,700

West Central Texas

	June 23	June 16
Stephens County	7,900	7,800
Eastland-Desdemona	7,750	7,500
Brown County	13,250	12,850
Coleman County	2,900	2,600
Callahan County	3,500	3,300
Shackleford County	10,750	10,200
Young County	8,300	8,000
Throckmorton County	950	950
Palo Pinto	450	450
Jack County	1,400	1,350
Others	650	650
Total, West Central Texas	57,800	55,650
Increase		2,150

West Texas

	June 23	June 16
Jones County	1,500	1,300
Mitchell and Scurry Counties	3,000	3,000
Howard County	4,800	4,600
Reagan County	18,000	17,700
Crane and Upton Counties	69,100	67,500
Crockett County	2,300	2,200
Pecos County	57,200	52,000
Winkler County	165,200	143,200
Others	1,700	1,750
Total, West Texas	315,800	293,250
Increase		22,550

East Central Texas

	June 23	June 16
Mexia	7,150	6,700
Currie	500	500
Richland	600	500
Wortham	1,900	1,900
Corsicana-Powell	11,150	11,000
Nigger Creek	1,200	1,250
Total, East Central Texas	22,500	21,850
Increase		650

Southwest Texas

	June 23	June 16
Luling	13,800	13,650
Lytton Springs	1,100	1,100
Somerset	700	700
Laredo District	6,200	6,000
Piedras Pintas	.....	.....
Dale	1,300	1,300
Others	400	400
Total, Southwest Texas	23,500	23,150
Increase		350
Total, Texas—(Outside Gulf Coast)	565,350	536,750
Increase		28,600

GULF COAST

Coastal Texas

	June 23	June 16
West Columbia	8,300	8,400
Damon Mound	850	850
Big Creek	1,400	1,450
Boling	2,350	2,500
Blue Ridge	5,850	5,850
Pierce Junction	10,500	11,000
Humble	1,450	1,500
Goose Creek	7,000	7,100
South Liberty	5,250	5,000
Hull	11,100	11,600
Saratoga	1,100	1,100
Batson	1,000	1,000
Barber's Hill	700	700
Sour Lake	3,500	3,400
Spindletop	39,900	40,050
Orange County	4,100	4,250
Others	1,500	1,750
Total, Coastal Texas	105,850	107,500
Decrease		1,650

Coastal Louisiana

	June 23	June 16
Vinton	4,600	4,700
Sulphur Dome	6,500	4,900
Lockport	4,200	4,000
Sweetlake	3,600	3,800
Evangeline	1,050	1,000
East Hackberry	5,000	5,450
Edgerly	1,200	1,250
Sorrento Dome	2,700	2,100
Others	900	950
Total, Coastal Louisiana	29,750	28,150
Increase		1,600
Total, Gulf Coast	135,600	135,650
Decrease		50

ROCKY MOUNTAIN

Wyoming

	June 23	June 16
Salt Creek	42,700	43,050
Grass Creek	2,600	2,500
Elk Basin	1,200	1,000
Big Muddy	2,750	2,650
Lost Soldier	4,200	4,300
Rock Creek	2,550	600
Lance Creek	600	650
Teapot Dome	.....	.....
Others	5,600	6,700
Total, Wyoming	62,200	61,450
Increase		750

Montana

	June 23	June 16
Cat Creek	1,750	1,750
Sunburst	8,000	8,800
Others	150	150
Total, Montana	9,900	10,700
Decrease		800

Colorado

	June 23	June 16
Moffat (Craig)	1,050	1,100
Fort Collins	2,400	2,500
Florence	1,000	1,100
Others	2,750	2,700
Total, Colorado	7,200	7,400
Decrease		200

New Mexico

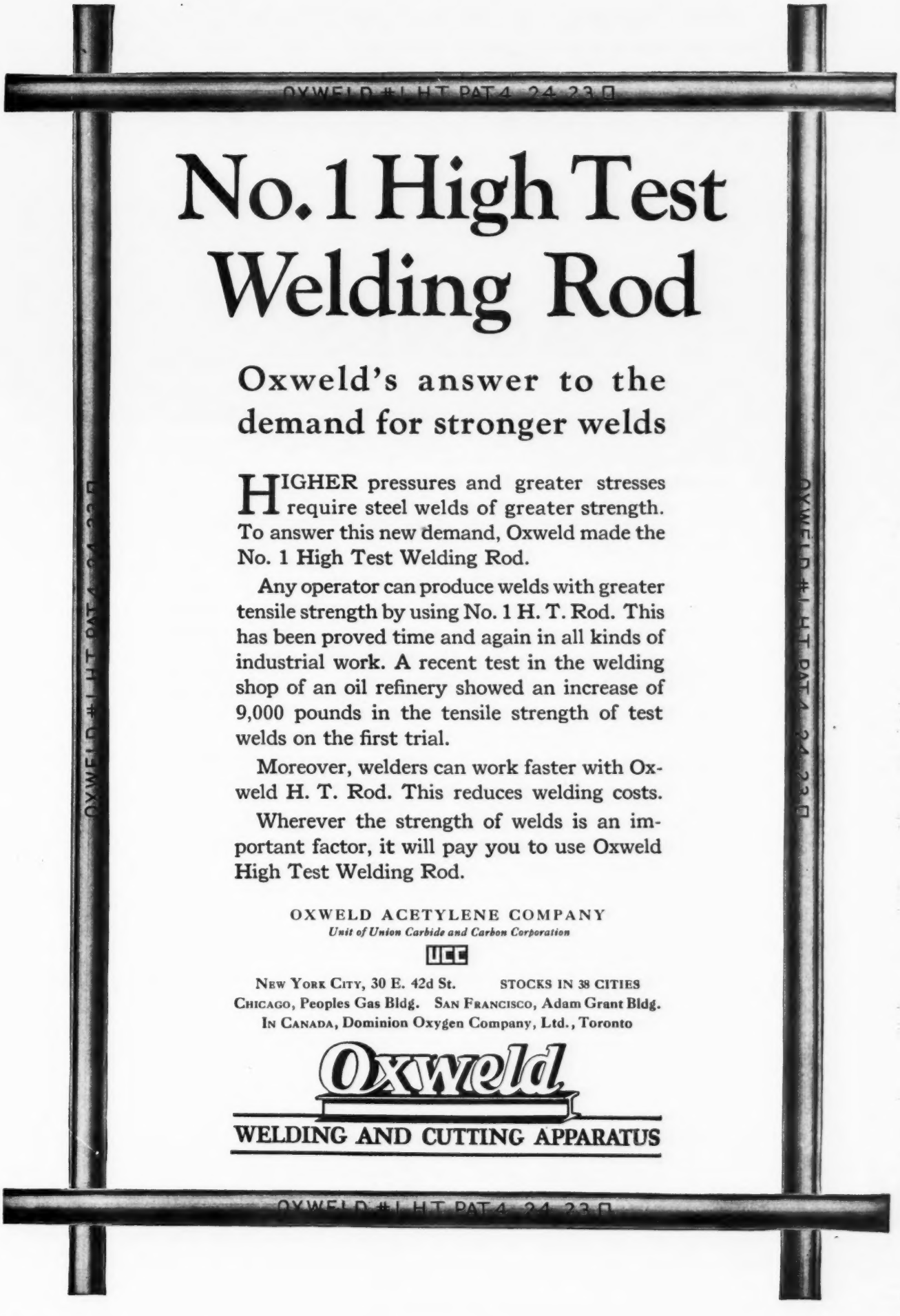
	June 23	June 16
Table Mesa	200	350
Hogback	200	200
Artesia	1,150	1,250
Rattlesnake	400	450
Others	200	200
Total, New Mexico	2,150	2,450
Decrease		300
Total, Rocky Mountain	81,450	82,000
Decrease		550

CALIFORNIA

	June 23	June 16
Santa Fe Springs	36,000	36,000
Long Beach	199,000	200,000
Huntington Beach	55,000	54,500
Torrance	17,500	17,500
Dominguez	11,500	12,000
Rosecrans	6,000	6,000
Inglewood	29,000	29,000
Midway-Sunset	70,500	70,500
Ventura Avenue	51,500	49,000
Seal Beach	37,500	36,500
Others	132,000	131,000
Total, California	645,500	642,000
Increase		3,500

EASTERN

	June 23	June 16
(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	107,500	109,000
Decrease		1,500



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Wherever the strength of welds is an important factor, it will pay you to use Oxweld High Test Welding Rod.

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FAIRNESS

Year after year the established concerns maintain throughout the oil fields the same high standard of service backed by thousands of dollars invested in equipment and organization.

Year after year these established concerns are forced to compete in the boom fields where activity is the greatest with fly-by-night individuals who are out to capitalize the boom and who have never contributed to the development, improvement, science and art of equipment and methods in their chosen field. They have no responsibility, reputation, constructive influence, service facilities, integrity and ability, and therefore their only claim to business is reduced prices.

Is it fair to patronize the fly-by-night individual in the boom field when the established concern is ready to render that high standard of service in the boom field that it renders in the fields where it maintains its organizations at a loss in order to render a conscientious service?

HALLIBURTON OIL WELL CEMENTING CO.

Duncan, Oklahoma

78 New Drilling Operations Started in Seminole

By John Power
N. P. N. STAFF WRITER

TULSA, June 23

INSTEAD of the usual curtailment plans to report for the Mid-Continent, as has been the case of late, a burst of activity, resulting in an increase of 78 operations during the week in the Seminole area alone, shattered the quiet of summer in Oklahoma.

The extension to the Little River pool in 7-6, is the scene of most of the new activity. The majority of the locations and rigs numbered in the following table will probably be drilling by this time next week.

In accordance with the Corporation Commission's order limiting drilling in the area south of Little River to one well to 20 acres and holding production to 1600 barrels per day from each 40-acre tract, some 85 wells are getting under way. There have been a few agreements consummated between owners of offsetting properties which have reduced slightly the number of wells starting.

As shown on the accompanying map, the Barnsdall Oil Co. holds the 80-acre tract covering the north half of the SE of 22-7-6, while the Magnolia Petroleum Co. owns the 80 acres offsetting it to the north. In consideration of the Barnsdall refraining from drilling the location in the NE of the west half of its property, the Magnolia is leaving its locations in the west half of its lease undrilled for the present.

Similarly, by stopping work on its location in the NE SE NE of 14-7-6, the Champlin Oil and Refining Co. is bringing about the deferring of drilling on the south half of the Magnolia's lease, which offsets it to the north.

The two largest producers in the state of Oklahoma at the present time are; the T. B. Slick No. 1 Hembree, and the Magnolia Petroleum Co. No. 1 Hembree, which offset each other in the SE of 19-7-5. A gage June 22 showed the Magnolia gusher slightly in the lead with a daily production of 6720 barrels, as compared to the 6707 barrels which the Slick well produced in the same period.

As yet no restrictive plans covering this area have been advanced. However, as the majority of the acreage in the vicinity is held by one company, the Magnolia, an active drilling campaign is not expected to start in the near future.

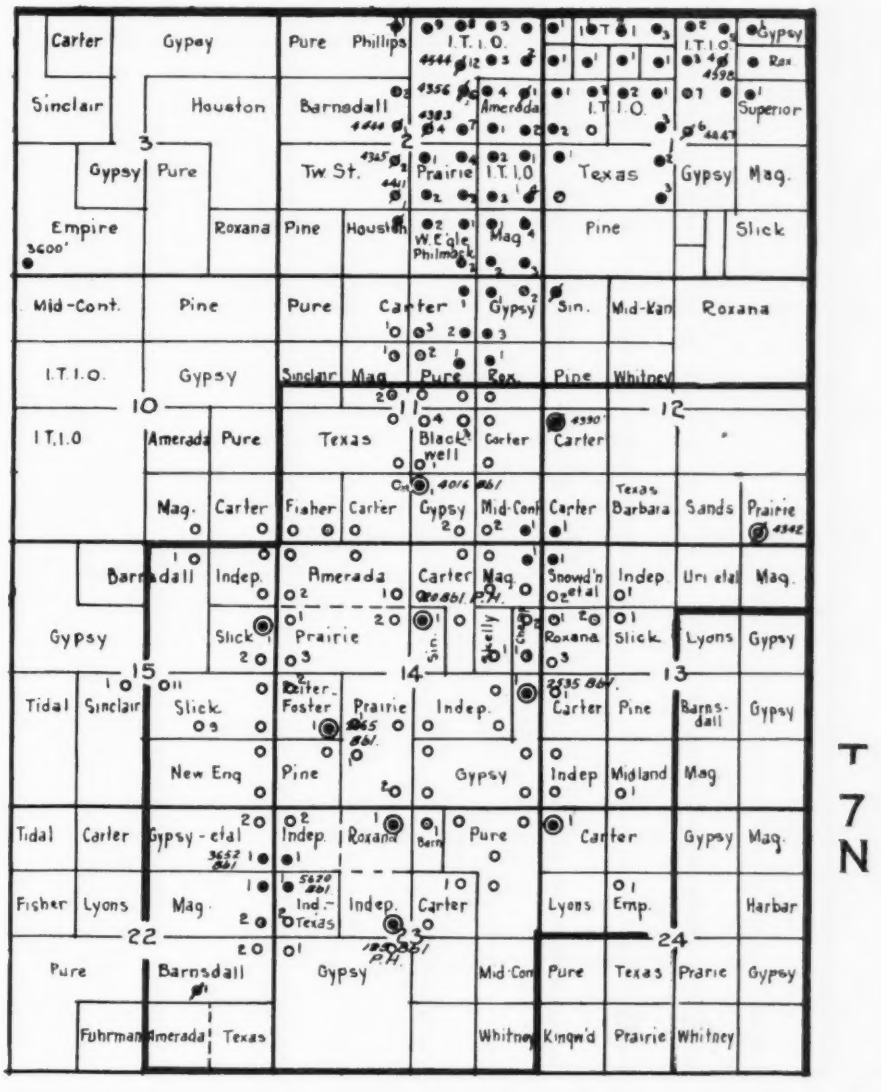
A well of the Gypsy Oil Co., drilling in the SE NE SE of 10-6N-6E, southern Seminole county, Okla., will be closely watched by Oklahoma operators until its completion. This test, on the Grant Davis farm, topped the Sylvan shale at 3715 feet, considerably higher than had been expected. The well was drilling at 3732 feet June 22.

The deep sand field of Champagnole, Ark., near El Dorado, which is the Mid-Continent's second active spot, showed a decline in production, in spite of an increase in the number of producers. Production of the field May 31 amounted to 28,589 barrels from 11 producing wells. Production as of June 21, three weeks later, shows a decline to 25,030 barrels in spite of the addition of 10 wells, bringing the number of wells producing from the deep sand to 21.

In addition to the large number of drilling wells already under way,

(*Continued on page* 46)

Map of south extension of Little River pool, Seminole county, Okla., showing the locations which have been made, which will soon be drilling. Ringed wells are the 10 test wells which proved the area



Seminole District Production by Companies and Leases, June 20 and June 13, 1928

BOWLEGS

Company	Farm	S.T.R.	June 20 Wells	June 20 Prod.	June 13 Wells	June 13 Prod.
Amerada	Rascoe	15-8-6	8	1,305	8	1,460
Atlantic	Baker	1-8-6	4	320	4	340
Atlantic	Fleet	23-8-6	3	420	3	410
Atlantic	Grayson	21-8-6	4	620	4	609
Atlantic	A. Jones	10-8-6	2	45	2	50
Atlantic	C. Jones	9-8-6	2	210	2	255
Total Atlantic			15	1,615	15	1,644
Barnsdall	McNac	28-8-6	1	26	1	25
Barnsdall	Murrow	11-8-6	4	770	4	754
Total Barnsdall			5	796	5	779
Carter	Bowlegs	15-8-6	4	1,240	4	1,255
Carter	Burden	23-8-6	3	230	3	255
Carter	Harjoche	15-8-6	6	360	6	390
Carter	Hilly	23-8-6	3	825	3	700
Carter	Jones	11-8-6	4	725	4	845
Carter	McGeisey	21-8-6	1	20	1	20
Carter	Mecco	9-8-6	1	0	1	0
Carter	Walker	15-8-6	4	480	4	505
Carter	Wise	23-8-6	11	2,360	11	2,145
Total Carter			37	6,240	38	6,115
Dixie	Culley	11-8-6	1	100	1	85
Empire	Lacey	15-8-6	6	383	6	338
Empire	Wise	23-8-6	2	302	2	307
Total Empire			8	685	8	648
Gypsy	Bowlegs	22-8-6	1	7	1	0
Gypsy	Bradley	8-8-6	1	5	1	0
Gypsy	Cumsey	8-8-6	4	1,187	4	1,122
Gypsy	Dosar	7-8-6	1	100	1	100
Gypsy	Grayson	13-8-6	4	342	4	667
Gypsy	Harjoche	10-8-6	3	1,487	3	1,397
Gypsy	Jones	11-8-6	1	90	1	55
Gypsy	Mission	5-8-6	1	50	1	3,210
Gypsy	Walker	15-8-6	8	1,452	8	1,533
Gypsy	Wise	23-8-6	2	260	2	312
Total Gypsy			26	5,368	26	8,396
I.T.I.O.	Barnett	23-8-6	2	328	2	301
I.T.I.O.	Barnett-B	24-8-6	1	173	1	210
I.T.I.O.	Billington	22-8-6	5	527	5	565
I.T.I.O.	Bowlegs	22-8-6	10	1,328	10	1,302
I.T.I.O.	Davis	22-8-6	4	8,777	4	936
I.T.I.O.	Fay	13-8-6	9	2,335	9	2,227
I.T.I.O.	Goforth	15-8-6	12	1,447	12	1,453
I.T.I.O.	Livingston	15-8-6	10	2,895	10	3,061
I.T.I.O.	Lizzie	13-8-6	3	554	2	624
I.T.I.O.	Walker	15-8-6	8	748	8	721
I.Y.I.O.	Wilmott	15-8-6	4	264	4	360
I.T.I.O.	Work	24-8-6	1	118	1	129
I.T.I.O.	Youngblood	24-8-6	2	124	2	22
Total I.T.I.O.			71	11,718	71	12,013
Magnolia	Davis	13-8-6	3	520	3	518
Magnolia	Davis-M	13-8-6	1	261	1	246
Magnolia	Hammond	10-8-6	6	396	5	781
Magnolia	Rhodes	12-8-6	5	3,458	5	3,412
Magnolia	Van Bukirk	9-8-6	1	258	1	201
Total Magnolia			16	4,893	15	5,158
McCulloch	Bowlegs	22-8-6	2	420	2	420
Mid-Continent	Baker	10-8-6	4	1,070	4	1,080
Mid-Continent	Bowlegs	22-8-6	1	5	1	15
Mid-Continent	Smith	12-8-6	6	455	6	515
Total Mid-Continent			11	1,530	11	1,610
Minnehoma	Bowlegs	15-8-6	4	285	4	264
Prairie	Gahagan	23-8-6	4	305	4	357
Prairie	Harber	10-8-6	8	2,230	8	2,570
Prairie	Jones	11-8-6	4	405	4	340
Prairie	Templeton	12-8-6	6	2,260	6	2,300
Prairie	Whitney	23-8-6	4	560	4	455
Total Prairie			26	5,760	26	5,022
Pure	Reed	14-8-6	14	3,390	14	3,068
Pure	Strother-D	14-8-6	4	356	4	588
Pure	Strother-F	10-8-6	5	1,776	5	2,066
Total Pure			23	5,522	23	5,682
Roxana	Taylor	16-8-6	5	142	5	120
Shaffer	Lacy	14-8-6	3	307	3	335
Sinclair	Bowlegs	22-8-6	1	90	1	90
Sinclair	Cumsey	10-8-6	4	2,547	4	2,649
Sinclair	Ellen	11-8-6	7	1,135	7	1,164
Sinclair	Harjo	14-8-6	3	830	3	790
Sinclair	Jones	10-8-6	7	1,213	7	1,343
Sinclair	Taylor	10-8-6	4	1,576	4	1,846
Sinclair	Taylor-W	10-8-6	3	1,244	3	1,395
Sinclair	Walker	22-8-6	4	872	4	887
Total Sinclair			33	9,705	33	10,164
Texas	Reed	14-8-6	11	1,830	11	1,835
Tidal	Grayson	13-8-6	4	380	4	410
Tidal	Harjoche	10-8-6	6	1,365	6	1,385
Total Tidal			10	1,745	10	1,795
Twin State	Jones	11-8-6	3	44	3	57
TOTAL BOWLEGS			317	59,424	317	64,517

EARLSBORO

Company	Farm	S.T.R.	June 20 Wells	June 20 Prod.	June 13 Wells	June 13 Prod.
Amerada	Andersen	15-9-5	2	1,010	2	975
Amerada	Cowden	4-9-5	7	1,630	7	1,735
Amerada	Rogers	3-9-5	2	755	2	1,095
Total Amerada			11	3,395	11	3,805
Atlantic et al	Foreman	18-9-5	1	160	1	160
Barnsdall	Brown	10-9-5	4	3,193	4	2,997
Barnsdall	F. Bruner	2-9-5	2	885	2	734
Barnsdall	N. Bruner	10-9-5	3	989	3	952
Barnsdall	Cudjo	14-9-5	1	25	1	26
Barnsdall	D. Davis	11-9-5	3	196	3	243
Barnsdall	J. Davis	11-9-5	4	1,028	4	1,080
Barnsdall	M. Davis	11-9-5	3	92	3	97
Barnsdall	Gibson	9-9-5	8	2,903	8	2,813
Barnsdall	Hern	15-9-5	1	3	1	14
Barnsdall	Ingram	1-9-5	8	2,388	8	2,810
Barnsdall	Pack	10-9-5	4	155	4	158
Barnsdall	Peter	10-9-5	4	207	4	225
Barnsdall	Sango	1-9-5	5	6,047	5	6,096
Barnsdall	Sebolka	15-9-5	1	444	1	527
Barnsdall	H. Sullivan	11-9-5	1	14	1	—0
Barnsdall	Sull-Harjo	10-9-5	2	12	2	41
Barnsdall	Watsutke	12-9-5	4	1,458	4	1,794
Total Barnsdall			58	20,039	58	20,607
Carter	Davis	13-9-5	2	410	2	450
Carter	Sango	1-9-5	4	750	4	810
Total Carter			6	1,160	6	1,260
Continental	Kays	2-9-5	2	150	2	50
Continental	Spencer	12-9-5	4	1,145	4	1,330
Total Continental			6	1,295	6	1,380
Crosbie	Bryant	9-9-5	2	0	2	0
Empire	Barker	12-9-5	1	420	1	420
Empire	Edmundson	3-9-5	3	103	3	30
Total Empire			4	523	4	450
Gypsy	Bruner	10-9-5	4	2,602	4	2,935
Gypsy	B. Carter	11-9-5	9	3,072	9	2,760
Gypsy	Earl	16-9-5	1	17	1	17
Gypsy	Hunick	5-9-5	1	2,095	1	2,125
Gypsy	Noble	12-9-5	4	2,025	4	2,700
Gypsy	Peter	10-9-5	3	347	3	420
Gypsy	Sango	1-9-5	5	3,645	5	2,232
Gypsy	State	16-9-5	4	1,017	4	1,108
Total Gypsy			31	14,820	31	14,297
Independent	Bruner	10-9-5	3	400	4	390
Independent	Sullivan	10-9-5	2	102	2	84
Independent	Knapp	8-9-5	3	2,193	4	2,261
Indep.-Margay	Gaines	11-9-5	4	760	4	676
Total Independent			12	2,695	14	3,411
Magnolia	Bryant	9-9-5	6	918	6	970
Magnolia	Cowden	4-9-5	4	75	4	70
Magnolia	Edmundson	3-9-5	3	20	3	30
Magnolia	Holmsley	11-9-5	7	784	7	404
Magnolia	Hyde	13-9-5	1	1,713	1	1,721
Magnolia	Ingram	10-9-5	1	25	1	25
Magnolia	Lena	10-9-5	3	75	3	70
Magnolia	Seay	12-9-5	9	3,261	9	3,000
Magnolia	Simpson	10-9-5	3	141	3	173
Magnolia	Sparks	11-9-5	7	716	7	612
Magnolia	Sullivan	12-9-5	3	84	3	108
Total Magnolia			47	7,812	47	7,183
Mid-Continent	McCumber	9-9-5	7	100	7	190
Mid-Kansas	Anderson	14-9-5	3	110	3	100
Phillips	Dunnaway	14-9-5	1	22	1	30
Phillips	Gram	9-9-5	2	0	2	125
Total Phillips			3	22	3	155
Prairie	Baker	24-9-5	1	50	1	50
Prairie	Davis	13-9-5	5	3,190	5	3,140
Prairie	C. Graham	3-9-5	2	15	2	30
Prairie	O. Graham	10-9-5	4	1,025	4	1,175
Prairie	Stidham	11-9-5	13	2,255	13	3,950
Total Prairie			25	6,535	25	8,345
Roxana	Bayliss	17-9-5	1	12	1	15
Roxana	Spencer	12-9-5	2	1,030	2	805
Total Roxana			3	1,042	3	820
Shaffer	Clark	1-9-5	4	907	4	907
Sinclair	Foreman	18-9-5	1	15	1	5
Sinclair	Hollins	12-9-5	1	50	1	20
Sinclair	Sango	2-9-5	3	3,735	3	3,945
Total Sinclair			5	3,800	5	3,960
Skelly et al	Sherry	6-9-5	1	3,775	1	3,862
Skelly et al	Spencer	12-9-5	1	595	1	605
Total Skelly			2	4,370	2	4,468
Superior	Walker	2-9-5	1	3,923	1	4,125
Texas	Anderson	2-9-5	8	655	7	470
Texas	Brown	10-9-5	8	1,650	8	1,905
Texas	Rogers	5-9-5	4	3,475	4	3,255
Texas	Wilmott	10-9-5	7	585	7	545
Total Texas			27	6,365	26	6,175
Tidal	Watkins	9-9-5	7	3,310	7	3,215
Twin State	Barker	12-9-5	3	110	3	100
Twin State	Hern	2-9-5	4	1,350	4	1,430
Total Twin State			7	1,460	7	1,530
TOTAL EARLSBORO			272	84,603	276	86,447

(*Continued on Page 43*)

Seminole District Production by Companies and Leases, June 20 and June 13, 1928

(Continued from Page 42)

LITTLE RIVER

Company	Farm	S.T.R.	June 20 Wells	June 20 Prod.	June 13 Wells	June 13 Prod.
Amerada	Nitey	2-7-6	3	1,835	3	1,935
Amerada et al	Fore	35-8-6	2	325	2	455
Total Amerada			5	2,160	5	2,390
Barnsdall	Hotulke	22-7-6	1	36	1	36
Blackwell	Nitey	35-8-6	6	2,637	6	2,763
Carter	Fish	36-8-6	6	790	6	1,080
Carter	Jackson	11-7-6	2	1,830	2	1,905
Carter	Larney	24-7-6	1	100	1	100
Carter	Wilson	12-7-6	1	100	1	100
Total Carter			10	2,820	10	3,185
Continental	Cosar	36-8-6	4	1,930	4	1,720
Gypsy	Brown	33-8-6	1	50	1	50
Gypsy	Conard	22-7-6	1	100	1	100
Gypsy	Cosar-M	25-8-6	1	140	....	....
Gypsy	Campbell	36-8-6	2	215	2	192
Gypsy	Cosar	36-8-6	1	757	....	....
Gypsy	Denmark	11-7-6	1	100	1	100
Gypsy	Nungee	1-7-6	1	30	1	30
Gypsy	Hulhoke	14-7-6	1	100	1	100
Gypsy	Pottie	35-8-6	4	1,332	4	1,592
Gypsy	Renton	11-7-6	3	2,515	3	2,647
Total Gypsy			16	5,339	14	4,811
Independent	Harris	23-7-6	2	200	2	200
Independent	Davis	2-7-6	3	2,335	3	2,435
Total Independent			5	2,535	5	2,635
I.T.I.O.	Campbell	1-7-6	1	46	1	51
I.T.I.O.	Dungan	35-8-6	3	1,545	3	1,647
I.T.I.O.	MA House	1-7-6	1	216	1	259
I.T.I.O.	WE House	1-7-6	1	27	1	54
I.T.I.O.	WE House-B	2-7-6	4	1,721	4	1,852
I.T.I.O.	Hull	26-8-6	2	2,044	2	2,141
I.T.I.O.	Jackson	1-7-6	3	1,470	3	1,420
I.T.I.O.	McCulla	1-7-6	3	678	3	679
I.T.I.O.	Nitey	2-7-6	6	808	6	829
I.T.I.O.	Phoebe-A	36-8-6	3	602	3	657
I.T.I.O.	Phoebe-B	36-8-6	4	205	4	155
I.T.I.O.	Reed	1-7-6	1	47	1	51
I.T.I.O.	Soketheche	1-7-6	3	791	3	807
Total I.T.I.O.			35	10,200	35	10,620
Magnolia	Cruse	2-7-6	4	1,475	4	1,603
Magnolia	Dixon	31-8-7	1	0	1	0
Magnolia	Harjo	14-7-6	1	55	0	0
Magnolia	Pottie	35-8-6	3	....	3	575
Total Magnolia			9	1,530	8	2,178
Mid-Continent	Bruner	11-7-6	1	100	1	100
Mid-Continent	Smith	5-7-7	1	30	1	30
Mid-Continent	Wadsworth	36-8-6	7	720	7	725
Total Mid-Continent			9	850	9	855
W. B. Pine	Hoyecha	26-8-6	1	600	1	680
Pine et al	Pottie	36-8-6	2	680	2	712
Total Pine			3	1,280	3	1,392
Prairie	Chilcoat	25-8-6	1	580	1	635
Prairie	Dungan	35-8-6	1	55	1	75
Prairie	House	2-7-6	4	1,090	4	1,135
Pure	Harjo	11-7-6	1	2,676	1	2,789
Total Prairie			6	1,725	6	1,845
Reiter-Foster	Bunyard	14-7-6	1	100	1	100
Roxana	Caesar	11-7-6	1	254	1	249
Roxana	Hotulke	23-7-6	1	102	1	69
Total Roxana			2	356	2	318
Shaffer	Narcome	36-8-6	1	50	1	0
Sinclair	Cosar	36-8-6	3	3,062	3	3,560
Sinclair	Teewee	14-7-6	1	100	1	100
Total Sinclair			4	3,162	4	3,660
Slick	Williams	15-7-6	1	100	1	100
Snowden-McS	Tiger	13-7-6	1	0	1	0
Superior	Soketheche	1-7-6	1	10	1	10
Texas	Coker	1-7-6	3	1,670	3	1,745
Texas	Hotulke	23-7-6	1	105	1	100
Total Texas			4	1,775	4	1,845
Tidal	House	1-7-6	3	715	3	720
Tidal	Johnson	1-7-6	1	45	1	45
Total Tidal			4	760	4	765
Twin State	Hull	25-8-6	1	480	0	0
TOTAL LITTLE RIVER			131	43,128	127	44,097

SUMMARY

TOTAL BOWLEGS	**317**	**59,424**	**317**	**66,517**
TOTAL EARLSBORO	**272**	**84,603**	**276**	**86,447**
TOTAL SEMINOLE	**302**	**51,995**	**303**	**51,673**
TOTAL SEARIGHT	**68**	**13,350**	**69**	**13,762**
TOTAL LITTLE RIVER	**131**	**43,128**	**127**	**44,097**
GRAND TOTAL SEMINOLE AREA	**1,090**	**252,500**	**1,094**	**260,496**
Average per well		**232**	**238**	

Completions in N. E. Central, West, Panhandle and North Texas, Week Ended June 16, 1928

NORTH EAST CENTRAL

Brown County

Company	Well No. Farm	Location Survey	Depth	Init. Prod.
Pandem	10-Hurron	Nobles	1065-1071	40
Brown et al	1-Lewis	Kenney	1064-1086	100
Cranfill-Reynolds	1-Lookes	Padillo	T.D. 1400	Dry
Cranfill-Reynolds	3-Kellar	Mitchell	T.D. 1230	Dry
McGahey	1-Gaines	HT&B	T.D. 1740	Dry
Aldridge	2-Woods	Gentry	T.D. 1503	Dry
Heatley	1-George	Edwards-Winn	T.D. 504	Dry

Callahan County

Humble	1-Dyer	BBB&C	T.D. 1221	Dry
Warren-Hays	1-Hickman	BBB&C	T.D. 803	Dry
Warren-Hays	2-Hickman	BBB&C	T.D. 806	Dry
Peer et al	1-Harris	BBB&C	T.D. 2512	Dry
Broderick et al	1-Gronthom	Hancock	T.D. 2103	Dry

Eastland County

Mook-Tex	3-Casey	Van Norman	T.D. 3020	Dry
McLester	1-Gailey	DeLaney	T.D. 3370	Dry
Panhandle	1-Breaber	Finley	T.D. 1650	Dry
Teotsorth	1-Hogue	ET	T.D. 1514	Dry

Limestone County

Reiter-Lewis	1-Ward	Varella	T.D. 2981	Dry

Navarro County

DeArmon et al	1-David	Taylor	T.D. 2385	Dry
Moss et al	1-Moody	Stevenson	T.D. 2829	Dry

Runnels County

Watchorn	1-King	Dyer	T.D. 3740	2½M

NORTH TEXAS

Archer County

Cullum	3-Mankins	SP	T.D. 700	Dry
Howard-Moore	1-Wilson	ATNCL	T.D. 1085	Dry
Hunter	1-Goodwin	Harris	T.D. 1422	Dry
Burns-Humble	2-Tabor	School lands	T.D. 1606	Dry
Gregg et al	1-Logan	Taylor	T.D. 1301	Dry
Texas	1-Connor	Tomlinson	T.D. 1209	Dry

Cooke County

Grant-Pare	Emby	ET	T.D. 1526	Dry

Foard County

Marland	1-Mennick	H&TC	T.D. 3015	Dry

Montague County

Ancher et al	1-Parr	Timmons	T.D. 800	Dry

Wichita County

Company	Well No. Farm	Location Survey	Depth	Init. Prod.
Virginia	2-Burnett	H&TB	T.D. 1602	Dry
Keller	1-Waggoner	Willis	1350-1377	20
Magnolia	1-Kemp	KWFL	1217-1221	200

Wilbarger County

Lawson	3-Waggoner	H&TC	2310-2330	330
Shaw	1-Waggoner	H&TC	2358-2363	125
Waggoner	4-Waggoner	H&TC	2303-2330	174
Tower et al	1-Waggoner	H&TC	2298-2306	300
Fain-McGaha	3-Waggoner	H&TC	2338-2356	210
Lawson et al	4-Waggoner	H&TC	1892-1900	130
Texas	5-Waggoner	H&TC	2314-2330	190
Texas	4-Waggoner	H&TC	2392-2403	1886
Barkley-Meadows	1-Waggoner	H&TC	1873-1893	312
Consolidated	1-Waggoner	H&TC	1846-1857	520
Pet. Prod. et al	1-Waggoner	H&TC	T.D. 3525	Dry

Young County

Canyon	2-Stewart	Dawson	T.D. 825	Dry
Madden-Hunt	1-Cooper	TEL	T.D. 1140	Dry
Steed et al	1-Smith	TEL	T.D. 1064	Dry
Reed-Wooten	2-Keen	Porter	T.D. 774	Dry
Morrison et al	2-Keen	Compere	T.D. 754	Dry
Allday	Drum	Fritchett	T.D. 651	Dry
Perry et al	1-Burdick	TEL	T.D. 625	Dry
Lee et al	5-Boone	BBB&C	482-507	25
Pennell et al	10-Boone	BBB&C	470-500	50
Cunningham	11-Hawkins	TEL	505-532	30

TEXAS PANHANDLE

Gray County

Pampa	1-Campbell	H&GN	T.D. 3500	Dry
Plains et al	1-Chapman	ACHB	T.D. 2950	Dry

Hutchinson County

McIlroy	1-Cockrell	M&C	T.D. 2975	Dry
Skyrocket	1-Jameson	Dubois	T.D. 3244	50
Holmes-Quinn	1-Quinn	BS&F	T.D. 3250	25

Potter County

Amarillo	1-Masterson	D&P	1650-3190	8M

WEST TEXAS

Dallam County

Marland	1-James	McEbath	T.D. 4245	Dry

Pecos County

Mazda-Savoy	2-Smith	TC	1530-1642	600
Matador	1-Smith	GCSF	1559-1708	100
Mid-Kans. et al	19-Yates	I&GN	1100-1104	1948(1hr.)

Completions in Oklahoma and Kansas, Week Ended June 23, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Coline	9	SWc SE NE 7-2-2 W	2300-2738	10
Cotton Belt	8	NEc NW SW 10-4-2 W	1601-1625	250

Cimaron County

Ramsey Bros.	1	CNW NE 27-5-5 E	T.D. 4681	Dry

Creek County

Burton Springfield	1	NWc SE SE 7-19-8 E	T.D. 3386	Dry
Holmes et al	1	SEc NE NW SE 24-17-9 E	T.D. 3257	Dry
Irelan et al	1	SWc SE NE 8-17-11 E	T.D. 2300	Dry
Tibbens	1	NWc 29-15-9 E	T.D. 3704	Dry
Wilcox	4	SWc NE NW 18-14-10 E	T.D. 3443	Dry
Bartlett	2	NWc 28-18-9 E	2526-2625	20
West	15	NWc SW NE SW 1-18-12 E	2086-2098	240
Tibbens	1	SEc NW SW 33-15-9 E	2279-2317	5

Grady County

Okla. Gas Utilities	10	NEc 26-5-8 W	T.D. 2390	46M
Watchorn	2	SWc NW 13-4-8 W	2244-2264	26M

Grant County

Kay	2	NWc SE SW 14-27-3 W	T.D. 4479	Dry

Jefferson County

Mitcham et al	1	SWc SE SE 8-5-4 W	T.D. 2523	Dry
Leash-McCall	1	SWc SE 17-7-5 W	771-792	50

Kay County

Gypsy	4	SWc NE SW 28-25-1 W	T.D. 4640	Dry

Marshall County

Humble	3	NEc 25-5-5 E	557-558	2

Muskogee County

Price	3	C SW SW 20-15-16 E	T.D. 1354	Dry
Neeley et al	1	NWc NE NE 1-14-18 E	T.D. 1079	Dry
Metzger et al	1	SWc SE SW 1-14-18 E	T.D. 990	Dry
Bramer-Fike	1	SWc NE SW 3-14-19 E	T.D. 600	Dry
Mussellem	5	CSL SW SW 22-14-16 E	1529-1572	10
Brennan	1	CWL NW SW NW 6-14-19 E	548-558	5
Lowerre	2	NWc SE 5-13-16 E	1816-1830	50
Smith et al	1	SWc SE 18-13-19 E	477-490	2M

Okfuskee County

Minnehoma	3	CNL NE NW 30-11-11 E	3615-3619	800
Jarvis-Holmes et al.	1	SWc SE 16-10-11 E	2822-2856	60

Okmulgee County

Rooch-Love	2	SEc NE 15-15-12 E	1830-1845	2½M
Ralco	8	CEL NW NE 33-12-12 E	1532-1546	10
Nourse	2	NEc SE NW 20-15-14 E	804-824	15
Morgan	1	SEc SE 11-11-13 E	1925-1928	2M
Tiger Mtn	3	NWc SW 11-11-13 E	2112-2124	7M
Wheeler-Kramer et al	1	CEL NE NW 23-13-11 E	T.D. 2459	Dry
McInturff et al	2	NWc SE NE 4-12-14 E	T.D. 1500	Dry

Osage County

Simons et al	4	NWc SW NW 31-29-12 E	978-1010	5
Minnehoma	3	CEL SW 11-26-8 E	2208-2228	40
Peters	1	SEc NE 27-25-9 E	2137-2187	90
Phillips	4	SWc NW SW 1-25-11 E	1696-1802	5
Winona	23	SEc NW SE 28-24-10 E	2030-2082	15
Osage Gas Prod.	388	NEc NW SW NE 32-24-12 E	1020-1038	¾M
Potts-Fields	3	SWc NE NW 30-23-12 E	1630-1754	5
Moore-Ohio Osage	1	SE NW SW 9-21-9 E	388-404	13

Pawnee County

Adamson	2	NEc SE NW 25-21-8 E	1103-1136	35
Steen	1	SWc NE 5-20-7 E	T.D. 2820	Dry

Pottawatomie County

Wolfe	1	SWc NW 16-7-5 E	T.D. 4417	Dry
Indep.-Derby	2	NEc SW SW 14-7-4 E	3785-3939	450
Magnolia	2	NWc NE 19-7-4 E	3924-3950	165
Seminole	1	NWc NE NE 22-7-4 E	3670-3770	75

Seminole County

Company	Well No.	Location	Depth	Init. Prod.
Pure	5	NWc SE NW 10-8-6 E	4071-4174	519
Sinclair	3	SEc NE NE 10-8-6 E	4387-4415	184
I.T.I.O.	3	SEc NW SE 26-8-6 E	4167-4194	2176
Homaokla	2	NEc SW SE 29-8-8 E	4160-4162	50
Gypsy	1	NEc NW 18-5-8 E	2585-2690	530
Sunray	2	SEc SW NE 7-5-8 E	T.D. 2637	Dry

Stephens County

Magnolia	1	NEc SE NW 3-1-4 W	T.D. 4328	Dry
Magnolia	1	NWc NE SE 15-1-4 W	T.D. 4725	Dry
Franklin	5	NWc NE NE SE 12-2-8 W	1518-1528	138
Magnolia	1	SEc NE 11-1-4 W	3435-3587	115
Westheimer	1	NEc SE 11-1-4 W	3524-3537	40
Schermerhorn et al.	4	NEc SW 13-1-4 W	2557-3540	495
Magnolia	1	NEc NW 24-1-4 W	2824-2854	40
Franklin	1	NWc NE 24-1-4 W	2714-2974	195

Tulsa County

Scott et al	1	NEc SW 33-17-14 E	T.D. 1500	Dry

Wagoner County

Keener	1	SEc SW NE 16-18-18 E	T.D. 682	Dry
Cane	1	NWc SW NE SW 36-17-17 E	T.D. 1540	Dry
Simmons et al	1	NWc NE 16-16-15 E	T.D. 1238	Dry
Friggel-Barth	2	CWL NE SW 29-18-15 E	1212-1235	50
Orr	2	SEc SW 34-17-18 E	393-430	35 & ½M

KANSAS

Butler County

Empire-Roxana	1	SEc NE 29-25-4 E	T.D. 2861	Dry

Cowley County

Manhattan	1	SWc NW 22-31-4 E	T.D. 2433	Dry
Roth-Faurot	1	SEc SW SE 18-31-5 E	T.D. 600	Dry
Watchorn	5	CNE SE 32-33-6 E	T.D. 470	Dry
Trees	2	SEc NE 21-31-4 E	2359-2388	125

Elk County

Odell et al	3	NEc SE 9-31-10 E	1970-2004	75
Sherman et al	2	SEc SW NW SW 10-31-10 E	1910-1977	75
Price et al	1	CNL SE SW 22-28-16 E	T.D. 350	Dry
Empire	4	SWc NE NW 13-29-8 E	T.D. 2989	Dry OWD

Greenwood County

Kiskadden et al	1	SWc SE 6-26-9 E	T.D. 2405	Dry
Brinegar et al	1	NWc 10-27-13 E	T.D. 450	Dry
Manhattan	7	NEc NW NW 11-22-10 E	2116-2154	150
Empire	8	SEc NW NE 25-22-12 E	1659-1725	147
Empire	13	SEc NW NE 25-22-12 E	1685-1720	107
Murphy et al	3	NWc SW SE 6-25-9 E	2090-2120	307

Marion County

Phillips	1	NEc NW SE 7-19-4 E	T.D. 2398	Dry
Gilliland	1	NWc NE SW 23-17-4 E	2346-2381	20

McPherson County

Tatloyd	2	CSW NW 32-18-2 W	1445-1457	7M

Morris County

Mathews et al	1	SWc NE 14-15-5 E	T.D. 2405	Dry
Cress-Franks et al.	1	NWc SE 16-15-5 E	T.D. 2210	Dry

Russell County

Mid-West Exp.	33	SEc SW SW 30-12-15 W	3040-3052	110

Sumner County

Champlin	3	NEc SW 9-30-2 W	3037-3055	25
Ramsey et al	3	NEc SE NE NE 22-32-2 E	2110-2159	150
Palmer-Barnsdall	8	SEc NE NW NW 23-32-2 E	2023-2100	700
Palmer-Barnsdall	11	SWc NW NW 23-32-2 E	2105-2145	250
Gypsy	1	NEc SE NW 23-34-2 W	4493-4505	175
Jarvis et al	1	SWc NW 11-34-4 W	T.D. 4802	Dry

Completions in North Louisiana and Arkansas, Week Ended June 21, 1928

Louisiana-Bossier Parish—Cartersville

Company	Well	Location	Depth	Yield
Nat. Gas & Prod. Co.	Kilgore No. 1	31-23-11	3078	31 mil gas

Bienville Parish

Humble O. & R. Co.	Anderson No. 1	29-18-5	4260	dry aband.

East Texas—Panola County

Beckman & Freeman	Burns No. 3	Alex Birdsong HRS	1044	4 mil gas

Shelby County

Magnolia Pet. Co.	Pickering Lbr. Co. No. 2	Wm. Crain HRS	2591	25 bbls.

Arkansas—Garland County

Chaywood Oil Co.	Malvern Lbr. Co. No. 1	17-2-17	1665	dry aband.

Ouachita County—Stephens

Wesson & Bonner	Hall & Wilson No. 1	22-15-19	2165	30 barrels

Union County—Rainbow City

Company	Well	Location	Depth	Yield
Lion O. & R. Co.	Nash No. 1	6-17-13	3058	210 bbls.
Magna Production Co.	Dumas No. 3	11-17-14	3300	salt water
Magna Production Co.	Rowland No. 2	14-17-14	3286	salt water
Magnolia Pet. Co.	Carroll No. 3	1-17-14	2993	90 barrels
Ohio Oil Co.	T.E. Adams No. 2	11-17-14	3287	salt water
Ohio Oil Co.	T.E. Adams No. 3	11-17-14	3257	salt water
Ohio Oil Co.	T.E. Adams No. 4	11-17-14	3304	salt water
Ohio Oil Co.	M. E. Lochner No. 1	11-17-14	3289	salt water
Ohio Oil Co.	M. E. Lochner No. 2	11-17-14	3281	salt water
Ohio Oil Co.	R. A. B. Smith No. 1	1-17-14	3254	dry aband.
Pure Oil Co.	E. F. Gregory No. 4	10-17-14	3200	2,000 bbls.
Pure Oil Co.	J. M. Gregory No. 2	11-17-14	3249	90 bbls.
Rushing et al.	Gregory No. 4	11-17-14	3236	1260 bbls.

Drilling Operations in Oklahoma and Kansas, Week Ended June 23, 1928

	June 23—Week Ended					June 16				
	Loc.	Rigs.	Drg.	S.D.	Total	Loc.	Rigs.	Drg.	S.D.	Tot.
OKLAHOMA										
Burbank	3	3	12	...	18	3	7	10	...	20
Other Osage	6	11	12	3	32	3	7	19	4	33
Bristow-Cushing	5	3	29	7	44	3	2	30	6	41
North Oklahoma	6	2	49	31	88	6	4	45	31	86
South Oklahoma	11	9	99	31	150	13	8	97	31	149
Muskogee	...	11	48	20	79	...	18	42	26	86
Okmulgee-Bristow	11	37	60	24	132	11	38	71	20	140
Seminole Dist.	30	44	187	14	175	31	44	163	15	253
Total Oklahoma	72	120	496	130	818	70	128	477	133	808
KANSAS	...	68	153	61	282	...	82	158	55	295
GRAND TOTAL	72	188	649	191	1,100	70	210	635	188	1,103

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended June 23, 1928

OKLAHOMA

Blaine County

Company	Well No. Farm	Location
Donley	1–Dickens	SEc NE 26-15-12 W

Caddo County

Caddo	4–Cutshall	SEc SE SE 5-5-9 W

Creek County

Roxana	2–Byrd	NWc 15-15-8 E
Shaffer	17–Tiger	CNL SW NW 17-17-7 E
Thorton et al	1–Shreill	CNL NW NW 2-18-11
Magnolia	3–Jones	C NW SE 35-18-7 E

Grady County

Carter	3–Spaulding	SWc SE NE 21-3-5 W

Hughes County

Slick	1–Larney	NWc SE 17-6-8 E

Jefferson County

McGinley-Sigler	3–Pifle	NWc NE NW 20-7-5 W
McGinley-Sigler	2–Pifle	NEc NW NW 20-7-5 W
Lesh-McCall	3–Peniston	SWc SE SE SW 17-7-5 W

Kay County

Ingram et al	3–Schmidt	CWL SW NE 31-27-2 E
Ingram et al	4–Schmidt	SWc NW NE 31-27-2 E

Lincoln County

Texas-Pacific	1–Faris	NEc SE NW 35-17-6 E
Texas-Pacific	3–Long	SWc NE SE 31-17-5 E

Marshall County

Humble	4–Sullivan	NEc 25-5-5 E

Muskogee County

Cooper-Badgett	1–Young	NWc NE NE 7-12-20 E
Badgett et al	1–Hildebrand	SWc NW SE 17-14-19 E
Brennan	2–Smith	NWc SW NW 6-14-19 E
Hale-Williams	1–Callahan	SWc NE NE 13-14-18 E

Okfuskee County

Producers	2–Barnett	NWc SE SW SW 19-11-11

Oklahoma County

I.T.I.O.	1–Park	C SE SE 24-11-3 W

Okmulgee County

Denton-Marshall	1–Osborn	NEc NE 17-15-14 E
Eagle Pitcher	1–Morton	SEc NE 32-13-12
Le Bean Drlg	3–Tunnely	NEc SW SE 32-12-12
Tiger Mountain	1–Hone	SWc NW 11-11-13

Osage County

Oklahoma Natural	786	SEc 10-21-10
Winona	24	SEc NE SE 28-24-10
I.T.I.O.	394	NWc NE NW 7-24-9
Marland	4	C SE NW 22-24-7
Marland	3	C NE SW 22-24-7
Peters	4	SWc NW 26-25-9
Amerada	1	NEc SW 25-25-6
Ross	8	NEc SW NW 14-29-11

Pawnee County

Tooten et al	3–Ackley	SWc NW SE 14-20-9
Fisher-Wallace	4–Unallotted	SWc NE NE SE 30-20-9

Payne County

Roxana	7–Long	NEc SE NW 18-19-6 E

Pontotoc County

Ramsey	3–Millner	SWc NW SW 17-5-8 E OWD
Homaokla	4–McCall	SEc SW NW 17-5-8 E OWD
Superior	1–Maulden	NEc NW NW 32-5-5 E
Ogg Pet	3–Roberts	SWc SE SW 29-5-5 E

Pottawatomie County

Slick	1–Youts	NEc SE SW 19-7-5 E
Slick	3–Hembree	NEc SW SE 19-7-5 E
Slick	2–Hembree	SEc NW SE 19–7–5 E
Magnolia	2–Yanta	SEc NE SW 19-7-5 E
Magnolia	4–Shipshewohno	SEc NE 19-7-5 E
Magnolia	3–Shipshewohno	SWc SE NE 19-7-5 E
Magnolia	3–Hembree	NWc SW SE 19-7-5 E
Magnolia	2–Hembree	SWc NW SE 19-7-5 E
Magnolia	1–Hembree	NWc SE 19-7-5 E OWD
Independent	3–Youts	NEc SE 19-7-5 E
Independent	2–Youts	SWc NE SE 19-7-5 E
Independent	1–Youts	NWc NE SE 19-7-5 E
Phillips	2–Cherry	SEc NE NE 25-7-4 E

Seminole County

Magnolia	4–Reed	SEc SW NE 22-7-6 E
Prairie	1–Noble	SWc SW 11-9-6 E
Magnolia	3–Reed	NEc SW NE 22-7-6 E
Magnolia	2–Reed	SEc NE 22-7-6 E
Skelly	2–Mayes	SWc SE NE 1-9-5 E
Skelly	1–Mayes	SEc NE 1-9-5 E
Sunray	2–Nichey	NEc NW SE 18-5-8 E
Gypsy	6–Peter	SWc NE NW 18-5-8 E
Gypsy	5–Peter	SEc NE NW 18-5-8 E
Gypsy	4–Peter	NEc SE NW 18-5-8 E
Mid-Continent	13–Fleet	SEc NW SE 7-5-8 E
Sinclair	1–Wyetka	SWc NW NW 13-5-7 E
Blackwell	1–Fleet	NWc SW NW 13-5-7 E
Independent	1–Smith	SEc SW SE 6-9-8 E

Stephens County

Mid-Kansas	4–Barnett	SEc NW NW 19-2-7 W
Franklin	6–Fobb	NWc NE SE 12-2-8 W
Pace et al	5–Wilson	SEc SW SE NE 12-2-8 W
Magnolia	8–Burk	SWc NE NW NE 34-1-8 W
Hanbury	8–Talieferro	NEc NW SW 27-1-8 W
Atlantic	1–Peddycoart	NEc SW NE 25-1-4 W
Twin State	1–Cole	NEc 14-1-4 W

Tulsa County

Riverland et al	1–Unalloted	NEc SE NE NE 4-19-11

Wagoner County

Finefield-Son	5–Vann	C SE NW SW 22-16-19 E
Aubyme	2–Island	CEL NW NE 21-17-16 E
Rowland	1–Haynie	SEc SW NE 13-17-15 E
Deems	11–Sarty	SEc NW SW 31-18-15 E

KANSAS

Butler County

Company	Well No. Farm	Location
Blaksley-Wentz et al.	1–Cornelius	NEc SW NW 24-27-4 E
Durham-Work	1–Graves	NWc SW NW 17-9-4 E

Chase County

Wilson et al	1–Jenson	SEc NW 24-19-7 E

Chautauqua County

Griffith-Bell	2–Julian	NWc NE NE 2-32-10 E

Coffey County

Nathan et al	1–Hollern	SWc NE NE 29-21-14 E

Cowley County

Shawver et al	1–Schultz	SWc NW NW 16-34-3 E

Greenwood County

Mendenhall et al	1–Hoggart	SWc NW NW 9-25-13 E
Bilyeau et al	1–Capps	NEc SW 22-27-12 E

Lyon County

Tulsa Oil et al	1–Gasche	NWc 27-21-12 E

Morris County

Nicols et al	1–Olson	NEc SW SE 11-17-6 E

Stevens County

McKenna et al	1–Hamm	SEc NE 10-33-38 W

Sumner County

Champlin	4–Latta	NWc SE NW 9-30-2 W
McCullough et al	1–Tuttle	SWc NE 29-34-1 W
Hartman et al	1–Treat	CWL SW 17-35-1 E

TEXAS

Archer County

			Survey
Kelleher et al	1–Andrews	Blk-140, Abstract-99	Carson
Gulf Prod	1–Hayter	Sec-2409	TE&L
Gilliland	1–Roach et al	Sec-1595	TE&L
Bridwell	2–Wilson	Blk-18	Geraldine
Texas	1–Griffith	League-3, Blk-12	Denton Co. Sch. Land
Texas	1–Ferguson	Sec-2, Abst-968	SP
Johnson	8–Wilson	Blk-19	Geraldine

Brown County

Heatley-Bishop	1-Williams	Blk-48	Malone
Pandem	2-Thomason	....	Clelland
Pandem	3-Thomason	....	Clelland
Wi cham et al	3-Keeler	Blk-624	Kenney
Gracey-Summar	1-Baker	Blk-623	Honeycutt
Logan et al	3-Lewis	Blk-624	Kenney
Logan et al	2-Lewis	Blk-624	Kenney
Crowder et al	2-Lewis	Blk-624	Lewis
Crowder et al	3-Lewis	Blk-624	Kenney
Cranfll-Reynolds	1-Debush	Blk-645	Padillo
Daniels et al	1-Nason	Blk-131	Pruitt
Bradstreet et al	3-Eubanks	Blk-141	Mitchell
Anna Belle	5-Hickman	Blk-783	Benson
Anna Belle	6-Hickman	Blk-801	McGloin

Callahan County

Sterling	3-Beasley	Sec-25	D&DA
Ungren-Fraser	2-Snider	Sec-142	BBB&C

Coleman County

Daniels et al	1-Parker	Blk-140	Crosby
McCamey et al	1-Smith	Sec-21, Blk-752	Martin
Foster et al	1-Overall	Sec-71, Blk-1	GH&H
Manhattan	2-Overall	Blk-1, Sec-14	GH&H

Denton County

McCall-Texas	1-Yeatts	Abstract-602	Hart

Eastland County

McLester	2-Gailey	....	De Laney
Lobough et al	1-Truly	Sec-1, Blk-6	ET
Hensleit-Russell et al.	1-Qualls	Sec-8	BBB&C
Brian	1-Flemming	....	Kent

Wichita County

Texas	354-Waggoner	Abstract-335	Meade
Texas	2-Waggoner	Blk-1, Abst-782	GC&SF
Texas	2-Mangold	Blk-34	Castleman
Omonundro	12-Pace	Abstract 255	Scott
Magnolia	2-Kemp et al.	Blk-27	KWVFL
Keller	2-Waggoner	....	Willis
Hammond	1-Munger	Blk-30	KWVFL
Bailey et al	1-Kasper	Sec-827, Abst-291	TE&L

Wilbarger County

Bohner	1-Harrold	Sec-25, Blk-13	H&TC
Silkwood et al	2-Harrold	Sec-25, Blk-13	H&TC
Lowery	4-Harrold	Sec-25, Blk-13	H&TC
Lawson et al	b-Waggoner	Sec-30, Blk-4	H&TC
Texas	7-Waggoner	Sec-25, Blk-4	H&TC
Petroleum Prod	5-Waggoner	Sec-16, Blk-4	H&TC
Pigg et al	1-McCrary	Sec-64, Blk-14	H&TC
Waggoner	2-Waggoner	Sec-24, Blk-4	H&TC
Waggoner	1-Waggoner	Sec-33, Blk-4	H&TC
Fain-McGaha	6-Waggoner	Sec-24, Blk-4	H&TC
Waggoner Farm	2-Waggoner	Sec-5, Blk-5	H&TC
Phillips	1-Waggoner	Sec-5, Blk-5	H&TC

Young County

Wichita Prod	4-Wilson	Sec-162	TE&L
Pennell et al	1-Keener	Sec-5, Abstract-1954	Compere
Riggs et al	12-McKinley	Sec-1489	TE&L
Shadbolt et al	2-Baker	....	Richardson
Panhandle	1-Willett	Sec-1977	TE&L
Bullington et al	6-Boone	....	BBB&C
Callender	1-Davis	Sec-1395	TE&L
Ford et al	1-Barrett	Abst-253	Sergeant
Franklin et al	1-Carpenter	Abst-253	Sergeant
Pennell et al	11-Boone	Abst-34	BBB&C

(*Continued on Page 46*)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended June 23, 1928

(*Continued from Page 45*)

WEST TEXAS & PANHANDLE

Crane County

Company	Well No. Farm	Location	Survey
Gulf Prod.	52-McElroy	....	CCSD

Gray County

Edwards et al.	2-Case	NEc Sec-182, Blk-B-2	H&GN
Empire	1-Hefter	SE NW NW Sec-215, Blk-B-2	H&GN
Delaney et al.	5-Jackson	SEc SW Sec-88, Blk-B-2	H&GN

Howard County

Cosden	4-Roberts	SEc Sec-129, Blk-29	W&NW
Pure	5-Chalk	SW NE SE Sec-125, Blk-29	W&NW
Merrick et al.	7-Hooks	SWc NE NW Sec-140, Blk-29	W&NW
Owen-Sloan	5-Roberts	NWc SE Sec-136, Blk-29	W&NW

Hutchinson County

Gulf Prod.	42-Dial	C SW SW	Warren
Gulf Prod.	42-Dial	Sec-22, Blk-27	H&TC
Pennoway	2-Smith	SE NW NE Sec-7, Blk-Y	M&C

Pecos County

Gulf Prod.	11-Yates	.... Runnels Co. Sch. Land	
Gulf Prod.	10-Yates	.... Runnels Co. Sch. Land	
Gulf Prod.	9-Yates	.... Runnels Co. Sch. Land	
Humble	5-Smith	Sec-101, Blk-194	GC&SF

Stonewall County

Phillips	1-Trandell	SWc Sec-429, Blk-D	H&TC

Winkler County

Company	Wel lNo. Farm	Location	Survey
Texon	5-Hendricks	CWL SW Sec-45, Blk-26	PSL
Southern Crude	T-67-1E4-Hendricks	NEc Sec-42, Blk-B-5	PSL
Southern Crude	T-88-K2-Hendricks	CEL NE Sec-41, Blk-26	PSL
Southern Crude	T-88-A-3-Hendricks	NEc Sec-44, Blk-26	PSL
Southern Crude	T-88-J-a Hendricks	CEL SE Sec-30, Blk-B-5	PSL
Skelly	7-Hendricks	CEL W½ NE Sec-40, Blk-26	PSL
Skelly	8-Hendricks	CWL NE Sec-40, Blk-26	PSL
Skelly	9-Hendricks	SWc NE Sec-40, Blk-26	PSL
Roxana	3-Hendricks	CNL SW Sec-46, Blk-26	PSL
Murchison	1-Hendricks	SW NW SW Sec-34, Blk-26	PSL
Landreath Prod.	5-Grisham et al.	NWc Sec-45, Blk-26	PSL
Landreath Prod.	5-Hendricks	SWc Sec-40, Blk-26	PSL
Independent	2-McCabe	SE SW NW Sec-36, Blk-B-5	PSL
Independent	3-McCabe	SW NE NW Sec-36, Blk-B-5	PSL
Gulf Prod.	25-Hendricks	NW SE NW Sec-34, Blk-B-5	PSL
Gulf Prod.	26-Hendricks	SW NE NW Sec-34, Blk-B-5	PSL
Atlantic	3-Hendricks	NEc NW Sec-46, Blk-26	PSL
Atlantic et al.	10-Hendricks	CEL NW Sec-40, Blk-26	PSL
Atlantic	4-Hendricks	CEL NW Sec-46, Blk-26	PSL
Atlantic et al.	9-Hendricks	SEc NW Sec-40, Blk-26	PSL
Republic	4-Hendricks	NW NE NE Sec-42, Blk-B-5	PSL

78 New Wells Started In Seminole

(*Continued from page* 41)

approximately 35 new locations have been added to the list. These are in the general vicinity of the Rovenger well, in the SE NE NW of 10-17S-14W, which came in June 9 for an initial production of 280 barrels an hour. Sections 3, 4, 9, 10, 15 and 16, all in Twp. 17S-14W, which surround the well, are getting the new play, which is north and west of the discovery portion of the field. The Amerada Petroleum Corp., a newcomer to the field, is starting its No. 1 Ezel, in the SE SW SW of section 3.

Other tests are fairly well divided between the major companies and the independents. The focal point for those addicted to "watching wells" is at present the Root Refineries, Inc., No. 1 Jerry, in the NE SW SW of 21-17S-14W. This test, which is waiting for the cement to set after running 6-inch at 2796 feet, is reported to have shown for 10 million cubic feet of gas with 150 feet of oil in the hole after a drill stem test. As it is about two miles southwest of the field, speculation is running rife, which is the way of speculation in an oil field.

Whether because of "sulks" engendered by being crowded out of the limelight, or because they are gathering strength for a new burst of activity, the remaining areas of the Mid-Continent failed to add anything to the week's news. The Texas panhandle production increased slightly of its own accord, there being no reported increase in the number of wells. The Allen field, of southern Seminole county, Okla., and the entire state of Kansas, from an oil news standpoint, lay dormant under the June sun.

Oklahoma's Deepest Test To Be Drilled Further

TULSA, June 23.—Oklahoma's deepest test is ready to go still deeper, after successfully completing what appeared to be a hopeless fishing job.

The Cromwell Oil & Gas Co., which is drilling the test, its No. 1 Thompson in the SW NE of 15-12N-3W, near Oklahoma City, spent two months fishing out 3,300 feet of 3-inch tubing, which had fallen into 500 feet of wet cement, at a total depth of 6872 feet.

This depth has been reached with rotary tools, and rotary tools were used in the fishing job. The well will be standardized and carried farther down, in the hope of finding production in the Wilcox sand, which is expected before long.

6-Day Week for Field Men In California

SAN FRANCISCO, June 23.—The California State Department of Industrial Relations has received letters from six important producing companies in the state indicating that they were preparing to place their employes, including those in the field, on a six-day working basis. Their six-day pay will equal what is now being paid for a seven-day week.

Standard of California inaugurated the six-day week for its employes last April and later extended the shorter week to its field men. General Petroleum and Union Oil have announced their field men will go on the shorter schedule July 1. Barnsdall Oil Co. will make the new schedule effective August 1. Officials of the Associated Oil Co. will adopt the same policy, but the effective date has not yet been fixed.

The Texas Co. and Honolulu Consolidated have also indicated that their field men will be given the short week without deduction in pay, before the end of the year.

Shell Co. will hold its annual meeting with representatives of its employes in July, at which time it is customary to take up and discuss working conditions, hours, and so on, and for that reason no announcement is expected from this company until after this meeting.

Richfield Oil Co. officials have the matter under consideration but, as far as it is known, no decision has yet been reached.

Developments Underway in Seminole Area June 23

Pool	Loc.	Rigs	Inactive	Drilling	Total
Little River	9	76	....	10	95
Seminole	....	....	....	3	3
Searight	....	....	....	4	4
Bowlegs	2	2	1	21	25
Earlsboro	3	4	4	29	36
Totals	14	82	5	67	163

New Artesia Map Issued

WASHINGTON, June 23.—A new structural map of the Artesia oil field, New Mexico, and adjacent lands covering an area of more than 300 square miles, has just been completed by the U. S. Geological Survey, in furtherance of its work of classifying the public lands with special reference to the requirements of the mineral leasing laws. The map shows structural contours on the "red sand," a prominent marker for the area; the location of wells; the location, serial number, and record holder of each prospecting permit and lease of public lands; and other features of interest. The area covered included the southern half of T 16 S., Rs., 27, 28 and 29 E., all of T 17 and 18 S., R 27, 28 and 29 E., and the northern half of T 19 S., Rs. 27, 28 and 29 E.

Yates Field Prorating Order Limits to 65,000 Barrels

HOUSTON, June 21

PRORATING of Yates field crude, heretofore voluntarily administered by Pecos County producers, July 1 will come under an order of the Railroad Commission of Texas.

Daily production will be limited to 65,000 barrels, as compared with 51,500 barrels now, an increase in allowable outlet of 13,500 barrels daily.

The order of the railroad commission, which has been under advisement since a hearing at Austin, June 11, followed recommendations of the Pecos County Prorating Committee.

Embraced in the order is the forward-looking prorating yardstick recommended by the Pecos committee, which calls for allotting production on a basis of 75 per cent for average potential production and 25 per cent for proved acreage.

The Pecos county order differs from the Winkler plan in these respects:

(1)—Units of proved acreage used for prorating consist of 100 acres each, as compared with 40 acres each in Winkler county.

(2)—Average potential production in the Yates field compares with total potential production in Winkler county for computing this factor in the prorating yardstick.

(3)—The 75/25 relationship in the Yates field compares with 50 per cent for proved acreage and 50 per cent for total potential in Winkler county.

Because the new Yates field plan "weighs" producing values of acreage units and attempts to set up withdrawals most nearly comparable with natural oil field conditions, the part played by proved acreage in the prorating yardstick was cut down from 50 per cent to 25 per cent. In fact, any proved acreage consideration as such in the Pecos plan represents a compromise. The "weighting" influence on acreage of averaging potential production takes care of this factor without the necessity for further considerations.[1]

Approximately 50 additional wells are being drilled in the Yates field. These new wells are necessary to put each of the 100-acre units into which the field is divided on production.

Where there is only one well on a unit its open flow potential, estimated on a 1-hour gage, will constitute average potential of the tract. When more than one well has been drilled on a unit the average potential will be found by dividing total potential by the number of wells to gain an average. The sum of the average potential of all units will constitute the field potential used for prorating purposes.

The Yates field order was made on recommendations of all but two operators owning production in the Pecos development area. Transcontinental Oil Co., which entered a protest at the June 11 hearing, signified its willingness to take part in the new plan but voiced opposition to an order being issued.

Oil Operators Trust Co., Inc., which recently took over riverbed properties on the east edge of the field, protested against the order because it wanted to increase its production.

The state of Texas, which owns royalty under the riverbed property, has refused to accept royalty payments from the Oil Operators Trust Co., Inc., according to J. T. Robison, state land commissioner. Refusal was based on the fact the oil was sold below the general market price of 60 cents a barrel at the well posted for west Texas crude. It is reported the price at the well was 35 cents. Max Robison said he had turned the matter over to the attorney general's department for investigation and action.

Production of the Oil Operators Trust consists of seven wells flowing wide open on about 10 acres of riverbed, producing about 1585 barrels daily. Wells in Yates field have been pinched in since last October under voluntary proration, except for those on edge properties.

Increase of the Yates field outlet from 51,500 barrels to 65,000 barrels daily, effective July 1, results from nomination of the Shell Pipeline Corp., to handle about 13,000 barrels of Pecos crude daily instead of the 3500 barrels it has been running.

The Shell recently began running oil through its trunk system from McCamey, Upton county, Texas, to Healdton, Okla. The system will have capacity for 35,000 barrels of west Texas crude daily after all pumping station installations have been made, but movements out of the Yates field will be in line with the nomination mentioned.

The railroad commission to date has taken no further action on the question of separating the Leck well area of northern Winkler county from the earlier Hendricks territory for prorating purposes.

1—NATIONAL PETROLEUM NEWS, page, 31, June 6, 1928.

Prorating Plan Recommended For Howard County

(By Telegraph)

HOUSTON, June 25

HOWARD county operators in west Texas have recommended a prorating plan to the railroad commission of Texas that would permit the opening of present shut in production to a maximum of 15,000 barrels daily.

Two deep pay horizons would be affected by the plan. One is at about 2500 feet and the other at approximately 2900 feet. Present shut in potential production of the two pays exceeds 30,000 barrels daily.

Moody Oil Corp., which recently bought the Dora Roberts half interest in 480 acres in the heart of the deep pay area, is going ahead with plans to build a short pipeline to the Texas & Pacific railroad at Coahoma for tank car shipments of crude.

It is reported Shell Pipeline Corp. may enter the field as a crude purchaser by building a short spur connecting with its McCamey to Healdton 10-inch trunk line.

No definite plans have been disclosed but rumors persist of the building of a refinery at either Sweetwater or Bigspring by J. S. Cosden or others with whom he may be associated.

Upper sand pay zones, commonly referred to as chalk district production, do not figure in proposed prorating of crude. Yields from shallow horizons such as these total less than 4000 barrels daily from about 140 wells.

Less than a dozen wells account for the more than the 30,000 barrels shut in potential daily production of the deeper horizons.

The proposal for prorating Howard county deep pays provides against swabbing of wells continuously, although swabbing practice would be allowed for cleaning out, testing and starting the flow.

The proposal for a prorating yardstick will be rewritten but originally it read as follows: "When the total quantity of production for the field has been nominated, the quantity of oil to be produced daily from each separate horizon below 2000 feet on each 40-acre unit on production shall be determined as follows: An acreage potential for each horizon shall be determined by dividing the potential of the well if one, or the average potential of the wells if more than one, by the acreage contained in said tract. The potential production for the entire field shall be determined by adding the acreage potential production of the various tracts as determined above and said sum shall constitute the common denominator to determine the percentage to which each horizon in each tract is entitled."

Long Beach Completions Few California Output Drops

LOS ANGELES, June 23

CALIFORNIA production dropped for this week just ending, due to decline in the older fields and to the small number of new wells placed on production at Long Beach.

Long Beach wells are now showing an average decline of around 9000 barrels daily each week, meaning that more than this amount of new production must be furnished each week to bring about a net increase.

Early this week, there were 194 wells actively drilling at Long Beach, 30 of which are old producers drilling deeper. Two are drilling below 7000 feet, 18 below 6000 feet, while 47 are drilling between 5000 and 6000 feet. Of the deeper holes, 11 are preparing for production tests.

A check of the drilling report shows that new wells started during the past six weeks have about kept pace with completions, indicating that after the peak is reached, the decline of output in the field will be comparatively slow. There is a chance that Long Beach will be producing around 175,000 barrels daily at the end of the year.

Only four wells were placed on production this week, these new wells furnishing slightly better than 8000 barrels flush production. Richfield Oil Co.'s Freeman No. 4 started flowing at 6316 feet for 2600 barrels of 31.1 gravity oil in addition to 2,000,000 cubic feet of gas. This well is not included in the four completions mentioned as it is flowing into the sump while it clears up.

According to recent reports the plan not to drill below the Selover sand at Seal Beach will come to an end within 90 days and the three companies interested—Standard, Marland and Associated—will carry some of their present producers deeper to the Hellman zone. This indicates that Seal Beach production can be expected to hold up well for the next several months.

One new well was completed at Rincon the past week, increasing the production to better than 3000 barrels. Miley's deep test is now drilling ahead at better than 5000 feet, as a real deep test for that new field in Ventura County. Miley's well has shown some oil sand in the cores, but when placed on production test, the casing collapsed.

No authentic information has come from the Wilshire deep test at Santa Fe Springs with all kinds of rumors floating about as to its probable depth and showing of the cores. The only known information is that it is still drilling ahead. Several companies interested in Santa Fe Springs are cleaning out their old producers and some five new holes are drilling. It is rumored that some of the new holes were started to drill for the deeper pay, if the Wilshire well proves a deeper zone, but none of them are intended for deep tests unless forced to it.

NEW YORK, June 23.—Announcement has been made of the formation of a new Swedish oil company in the Malmo, Sweden district to be based on an intimate cooperation with the Anglo-Persian Oil Co. Ltd. of London. The field of operations will include the entire Swedish west coast, and it is reported that tanks for gasoline are to be built at three points. The erection of a modern bunkering station in the harbor district of Goteburg is contemplated.

LOS ANGELES, June 23.—A. R. Thomas was recently appointed distributing agent in Southern California for Hope Engineering & Supply Co., of Mt. Vernon, Ohio, with headquarters in the Western Pacific Bldg., Los Angeles.

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North Winkler Prorating Comes Up Again

HOUSTON, June 23.—Prospective producers in the Gibson-Johnson, or north Winkler area of west Texas, will hold a meeting in Fort Worth, June 28, to discuss plans for spacing wells and prorating production.

The suggestion has been made that drilling be confined to one well on 40 acres, said well to be drilled in the center of the 40-acre tract. Other operators believe the area would lend itself readily to 160-acre units and average potential production for prorating purposes.

The plan which is finally decided upon by the operators will be submitted to the Winkler County Advisory Committee with the request that this body, in turn, refer it to the Railroad Commission of Texas for consideration.

James R. Gahan, of the Tidal Oil Co. of Texas, in issuing a call for the meeting, said:

"It is understood, of course, that all of Winkler county is now subject to the proration order which has been made by the Railroad Commission of Texas and is now operating in the Hendricks pool. It is not definitely known whether or not the production now found in the Hendricks pool extends as far north as the Gibson-Johnson well. Many operators, however, are in agreement that the area should be divided into two parts, the south part being known as the Hendricks pool and the north part the Gibson-Johnson area or the north Winkler pool. If this is done a more perfect plan of proration could be worked out in the north Winkler pool than now exists in the Hendricks pool. This, for the reason that, in the north Winkler area, only one well is completed and two are drilling. It is thought that the opportune time to work out a plan for spacing of wells and proration in the north Winkler area is before any additional locations are made and wells drilled.

"The undersigned was requested by the advisory committee to call a meeting of all operators or lease owners in the area bounded on the south by the south line of Secs. 1, 2, 3, 4, 5 and 6, Block 26, and on the west by the west line of Sec. 6, Block 26, extended north to the New Mexico line, and on the east by the east line of Sec. 1, Block 26, extended north to the New Mexico line."

LOS ANGELES, June 23.—Shell subsidiary officials visiting Los Angeles recently to confer with local officials, included: R. B. Roark, general field superintendent of Roxana Petroleum Co.; R. H. Ames, Mexican Eagle Oil Co., Mexico City, and J. A. Assheton.

Development of Cracking Art Is Epic of All Industry

WHILE the majority of authors of books on conservation of petroleum discuss that subject in terms of future saving of oil, James H. Westcott, in "Oil—Its Conservation and Waste" shows what amount of oil the petroleum industry has saved, in the last 12 years only, by self-adopted conservation measures. Mr. Westcott is an investment analyst of New York, who specializes in oil company securities.

The total volume he arrives at, is the staggering figure of 7,766,600,000 barrels saved from 1916 to 1927, equivalent to 86 per cent of the total production of crude in this country during that period and 59 per cent of world production.

This total is made up of oil conserved through increased refinery efficiency and reduction of evaporation losses, through the use of cracking processes and through the recovery of gasoline from natural gas.

The saving through the first cause is placed at 2,098,200,000 barrels, through the use of the cracking process at 2,532,200,000 barrels and through recovery of gasoline from gas 1,136,200,000 barrels.

In arriving at these figures, which represent crude petroleum the author uses a gasoline recovery from crude of 17.1 per cent, the 1914 rate of recovery, assuming that, if cracking and natural gasoline plants had not been developed, the additional amount of crude which would have had to be produced and refined in any year to meet the then current demand for gasoline, may properly be based on the percentage of gasoline recovered from crude oil by refineries in 1914, before these conservation measures came into effect.

The discovery and adoption of the cracking process Mr. Westcott terms the greatest conservation measure ever adopted by any industry.

"In cracking lies the glory of the oil industry," he says. "It will ever be a classic to which all other industries may aspire. It puts to blush the dream of the old alchemists, the discovery of the philosopher's stone. For we have in cracking, not the transmutation of a base metal into gold which could be of very little economic value if produced in large quantities—it would thereby result in debasing that precious metal and destroy our financial structure—but a worthwhile transformation, the transmutation of a low cost and abundant non-volatile fluid into the highest known element of crude oil, gasoline, a product which has become so essential for the outstanding and predominating position of this country."

On this basis of 1914 recovery of gasoline from crude which, of course, is without cracking, it would have been necessary to have refined over 5,153,800 barrels of crude a day in 1927 to meet domestic consumption and exports in that year; whereas daily average U. S. production was 2,460,000 barrels.

Perhaps the most interesting figures in this new book, are the figures given for recovery of gasoline in recent years through the various cracking processes.

In 1927, through Burton stills, 15,800,000 barrels of gasoline were produced, which is 15.6 per cent of total output of cracked gasoline that year, allowing the conservation of 66,386,000 barrels of crude, or 7.4 per cent of total crude output in this country in that year.

Holmes-Manley stills turned out 14,058,030 barrels of gasoline, 13.9 per cent of the total output of cracked gasoline, allowing the conservation of 59,067,000 barrels of crude.

The Tube and Tank process developed by the Standard Oil Co. of New Jersey produced 19,700,000 barrels of gasoline in 1927, 19.5 per cent of total output, conserving 82,773,000 barrels of crude, equivalent to 9.2 per cent of total crude output of the country in that year.

Cross cracking stills produced 15,950,000 barrels of gasoline, 15.8 per cent of total output, allowing the conservation of 67,017,000 barrels of crude.

Through the Dubbs process, Gulf-McAfee, Isom, Jenkins, Coast and another owned and operated by the Mid-Continent Petroleum Co., and miscellaneous, approximately 35,000,000 barrels of gasoline were produced in 1927, conserving about 147,000,000 barrels of crude.

The foregoing figures represent more than 100,000,000 barrels of gasoline production for 1927, as compared with about 330,000,000 barrels total gasoline output for the year.

Recent progress in the producing branch of the industry in the use and conservation of natural gas to aid in the efficient production of crude from the ground is cited, as well as its study to lessen losses through corrosion of equipment, to show the industry is alive to the interests of its stockholders and the general public.

"No defense or excuse is needed by the oil industry and it does not require propaganda in its favor," the author concludes. "Its long record of development and progress is one of

(*Continued on page* 64)

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The Editors' Viewpoint

National Petroleum News

Politeness is an Asset

MAJOR oil companies are fast learning that it pays to be polite. Sales executives of large marketing companies insist that their salesmen be polite and courteous. The public notes this policy at the service stations.

The Standard Oil Co. of California has a rule that its male employes, when riding in a company office building elevator, must remove their hats when women are present. This rule applies for women employes of the company as well as for women in the building on business.

The hall boys in the Standard building conduct a visitor to the office of the man he wishes to see and then introduce the visitor by name. If the visitor must wait, he is offered a seat and given something to read to make the time pass quickly. Courtesy pays, as practice has proved.—W. E. G.

How Do They Get That Way?

LOUISIANA, long noted for its conservatism, certainly pulls a "bell-ringer" when it does swing into action. A bill proposed in the legislature at Baton Rouge would fix the price of 23-30 gravity crude oil at 10 times the highest posting (exclusive of state tax) of service station gasoline. An increase is provided for each degree of gravity above 30. The bill, if enacted into law, would be patently unconstitutional because of its governmental price-fixing character. It is worthy of mention only as an example of the "freaks" that sometimes come before legislative bodies.

Under such a statute as the bill contemplates the crude from one field that now takes a posted price of 75 cents a barrel at the well would sell for $1.71. As one operator remarked when he heard of the bill "it would be a powerful incentive for conservation in Louisiana, what with west Texas and Venezuela crude available at their present markets."—P. W.

Exposition Growing in Value

WHEN busy business men step out of their private work for a bit and do a good job of business management in behalf of an industry, they are entitled to all the commendation that can be given them. So the oil industry owes a great vote of thanks to President W. G. Skelly and his officers and executive committee of the International Petroleum Exposition and Congress for the success of last year's show. That success guarantees similar success for this year's show which has been announced for Oct. 20 to 29 at Tulsa.

Last year's show was a success both in number of exhibitors, of which there were 257, and in point of attendance, which was 100,000. By the system of admission at the gate, these were practically all people directly interested in the oil business. It was also a success financially, returning a profit which has been used to write off the indebtedness of previous expositions and to put the exposition company in better shape.

Mr. Skelly should be particularly commended for his efforts in connection with the exposition. Mr. Skelly and his associates in the active management of the exposition put in a great deal of their time in checking details, which checking so frequently is delegated to others, and hence is not always as well done as it should be.

Every day Mr. Skelly and members of his executive committee were cruising through the grounds, canvasing every exhibitor to make sure that he was getting the service from the exposition company that he was entitled to. This close scrutiny of details also is what helped to make the exposition financially profitable.

Such an exposition is of value to the industry, as well as to the exhibitors. It might even be a question if it isn't of more value to the industry than to the exhibitors. The cost is enormous—far beyond the couple of hundred dollars that is asked for space. Exhibitors go to great expense, as they necessarily must owing to the character of their equipment, in installing the equipment on the exposition grounds and in keeping on hand all of the men necessary to demonstrate it and tell about it to inquirers.

Exhibitors in all lines of industry are constantly scrutinizing this expense and frequently challenging the value of it, because it is heavy. However, if one studies the industries that have these large equipment expositions that are well managed and are well attended, we believe one will find that they have been of value to the industries; that those industries have progressed the most rapidly in the development and the adoption of the most modern equipment. The more progress that an industry can make along this line, the better it is for the industry and the better it is for the American public.

Industry has been a heavy contributor in more ways than one to the cause of education the country over. Expositions such as have been held at Tulsa can be looked upon as a most valued contribution to education. They can properly be classed even with schools and colleges.

The members of the oil industry have shown their appreciation of this contribution by the equipment manufacturers by the way in which oil men have attended and studied the equipment on display.

Under the continued capable management guaranteed for this year, the October exposition should be of still greater value to the exhibitor and to the oil industry generally.—W. C. P.

Don't Abuse Courtesy

HOW would the refiners of the United States like to pay demurrage again on their own tank cars (owned or leased) as they stand idle on their own private tracks? Not at all! Then they should hold a firm grip on the present arrangement which they enjoy by courtesy of the carriers.

The Interstate Commerce Commission has ruled that railroads may charge demurrage upon cars they do not own while standing idle on the tracks of the company that owns the cars. The Supreme Court has upheld the ruling. It is not now in force because the railroads do not consider it good business to enforce it.

But there is a chance for the carriers to revert to

that old custom. They have been tempted to do so in some instances, it is said. A few shippers are alleged to have made a practice of supplying certain good customers with a pad of blank car lease agreements, signed but not dated or filled out.

Whenever the jobber receives a shipment of gasoline for which he has no room in storage and wants to use the cars as storage for a while he fills out one of the blanks the refiner has supplied him. Then, when the railroad agent tries to collect demurrage from Mr. Jobber, he springs the document of immunity and "his fingers are crossed."

All the offenders in this regard are not in the oil business but some of them are, it is said. Railroad men are human. They do not believe in the old method of charging demurrage any more than the shippers do, but they probably will not stand for a lot of this.

It amounts to a freight refund and the railroads are afraid to ignore it, even if they wanted to do so. The temporary leasing of a tank car by a refiner to a jobber in order to help the jobber avoid paying demurrage is an easy way for a few companies to burn the fingers of the whole industry.—W. K. H.

Oil Selling at a Pittance

PETROLEUM products are almost the cheapest things in the United States. The price index of the U. S. Bureau of Labor Statistics gives the price index of petroleum products in May as 71.2, the average for 1926 being 100. The consumer's dollar in May, 1928, bought 40.4 more gasoline and oil than it did in 1926.

The bureau reports on 550 commodities, the index number of the total being 98.6 in May compared with 100 in 1926. The only things that exceeded petroleum products in cheapness, were rubber and automobile tires. The index number of rubber was 39 and tires 69.8.

Considering that petroleum products prices were low in 1926, the oil industry should pause to consider whether it is giving away something that is rightfully its—an adequate return for the goods it disburses. Surely oil is selling only for a pittance.—R. B. S.

How Unions Gain "Ideals"

THOUGH little has been heard about the American Federation of Labor's attempt to unionize the oil business, beginning with the employes of filling stations, bulk stations and refiners, evidence of the blighting effect of unionism can well be considered further by executives of the oil industry.

As has been said before, Cleveland is a fairly open shop town, except in the building trades, where it is strongly closed shop, a condition which many observers have figured is costing the home owners of Cleveland millions of dollars a year in additional costs of building and maintenance over the same cost in open shop cities.

There is a vast difference between the ideals that unionism lays claim to and the practical operation of its plans towards these alleged ideals. Unionism must be considered by what it is and what it does, and not solely by the ideals it lays claim to.

Following is the report of the American Plan Association of Cleveland, as to some of the methods of unionism to enforce an absolutely closed shop—methods which the oil industry could well fear if unionism were given an upper-hand in the oil business. Conditions referred to are current in Cleveland at present:

"There are between 75 and 100 so-called 'one-man' plumbing contractors in Cleveland; plumbers who contract to install the pipe work in small buildings and do most of the work themselves. The Plumbers' union objects to this method of operation. They have set up a rule that a contractor cannot work on the job himself. He must hire others to do the work and he must make his living from the profit obtained on the work of the other men. The fact that a certain job may require the services of only one man and that the small contractor may have but that one job at a given time is apparently not given consideration by the union.

"Not content with trying to enforce this rule upon bona fide members of the union it is now seeking to prevent all others from violating this rule. In short, a concerted attempt is being made by business agents of the Plumbers' union to force plumbing contractors who fail to adhere to this rule out of business. This contention is fully supported by affidavits on file at the office of the American Plan Association. These affidavits, among other things, set forth the following startling facts:

"That despite the fact that certain of these one-man contractors have had bona fide contracts to install the plumbing in houses under construction, they have been repeatedly called upon by agents of the union and warned that they would not be permitted to finish the work but must employ a union plumber to do the job and must not work on the job themselves.

"That when the contractors have refused to comply with such demands the business agents have gone to owners of the buildings under construction and threatened to pull other crafts off the job if the plumbing contractor was not forced to comply with their demands.

"That not only is the plumbing contractor prohibited from working on the job himself but he is permitted to spend only fifteen minutes a day on the premises, this time being allowed for the giving of instructions to his workers.

"One affidavit, filed by one of these harassed plumbing contractors, sets forth that in the office of U. S. District Attorney A. E. Bernsteen the contractor offered to join the union if he might be permitted to continue to work on his own contracts. He further states that Mr. Bernsteen endeavored to have the union agree to this proposal but that both the president and the secretary of the union, who were present, refused to accede. The affidavit further states that in the presence of Mr. Bernsteen the contractor reminded the secretary of the union that there were about 75 one-man plumbing contractors in this city whom he proposed to put out of business and that he replied by saying 'You can rest assured they will go out of business.'

"So persistent became this persecution of one-man contractors, both directly and indirectly through threats of business agents against building owners themselves, that a group of these men appealed to the American Plan Association for advice. The matter was taken before officials of the department of justice and a conference of union representatives and the open shop contractors called in the office of District Attorney Bernsteen. According to one affidavit now on file, at this conference Mr. Bernsteen warned representatives of the union that in refusing to permit these contractors to join the union and work on their own jobs they would not only be restraining the men from engaging in the plumbing business but would be depriving them of the right to earn a living at their trade.

"Despite this warning, agents of the union refused to in any way modify demands. As a result, officials of the department at Washington have been asked to make an investigation of the situation."

Retailers' Vanity Blamed for Too Many Pumps at Wayside Stations

By Allen S. James
N. P. N. STAFF WRITER

CLEVELAND, June 23 THE indictment against leasing and loaning equipment to retail distributors of petroleum products contained in a survey recently completed for S. F. Bower & Co., Fort Wayne, Ind., is an unbiased summing up of the topics one hears in almost any jobber's office when talking profits and marketing methods.

Many jobbers, however, carry the indictment a step further, and blame much of the present situation on the retailer's vanity. They say he has learned to demand three pumps where one will serve his purpose merely because he wants his place, no matter how small it is and how small a business he does, to look like a big service station.

In Nashville, Tenn., oil men tell about the stations and pumps along the highways leading from the city. They mention especially Gallatin road. The writer recently drove out 10 miles along this road and counted the stations and pumps. In the 10 miles there were 28 stations and 83 pumps. Almost three stations to the mile and three pumps to the station.

There were along the highway at one point two "hot dog" stands so close one could lean from the window of one and shake hands with a person leaning from the window of the other. Yet in front of each hot dog stand were two gasoline pumps—four pumps in a row there, and so close it is doubtful if four cars could have been serviced at one time without careful maneuvering for positions.

Going to the other extreme there was one of the most attractive stations in the state. It is the Inglewood station. In addition to motor fuels and oils, the owner operates a soft drink, lunch, dining room service, with dancing, and has a tire repair shop.

The approach to a new bridge being built over the Cumberland river joins the Gallatin road about three or four miles from Nashville. The bridge will not be completed for some time. Recently a man who had some land adjoining the right-of-way for the approach asked a jobber to supply him with equipment for a station at that place. The jobber was not adverse to talking the matter over. He was admittedly surprised, however, when the man announced he was ready to build the station, and wanted SEVEN pumps. Seven pumps at a station on a road where there already are 28 stations and 83 pumps.

There is a city ordinance in Nashville which compels stations to close on Sundays. The corporate limits of the city are comparatively small for a city of that size. Consequently there are any number of small service stations scattered around the city, just beyond the city line. These stations will do very little business week days, and depend for their existence on Sunday patronage.

The owner of a new sandwich stand on one of the highways near Nashville recently asked a jobber to put in three pumps. The jobber checked the man's credit rating and refused to install the pumps. He said he probably would have to take them out in a short time, meanwhile the gallonage would not have been sufficient to pay him for his initial cost of installation. Another oil company put in the pumps and took a chance.

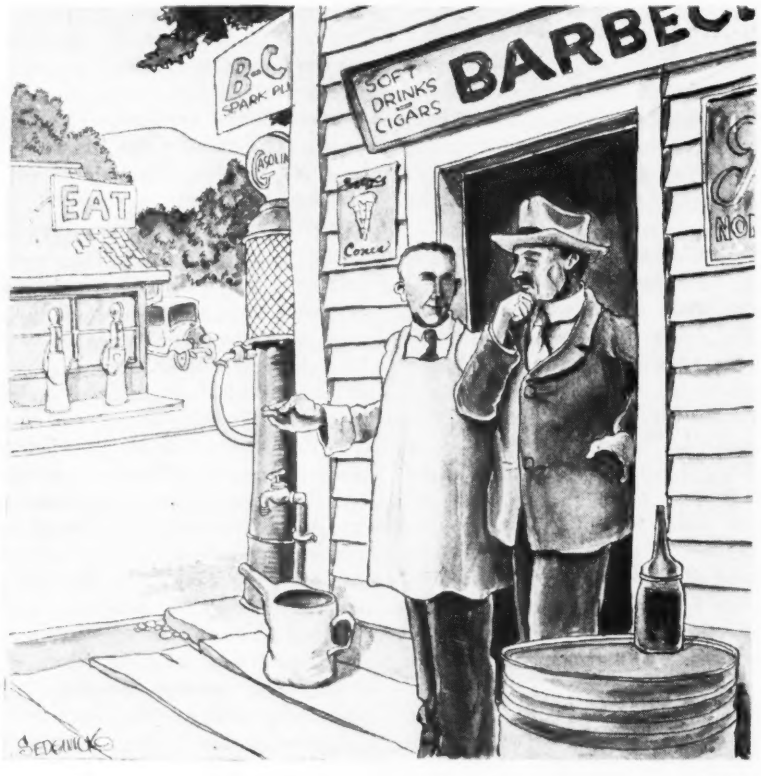
On a highway at the edge of one of the larger cities in Arkansas stands an old wooden building which originally was a blacksmith shop. It was built to accommodate horses and wagons, not automobiles. In August, 1927, an oil company installed three pumps at this place which had been converted into a "filling station." The pumps were installed at the side of the building, and the approach to them isn't the easiest in the world.

These three pumps were in about 15 days when the owner of the station changed to another oil company, which put in their pumps, these being three 10-gallon pumps, and an additional storage tank. The station at that time was averaging around 1000 gallons of gasoline a month.

About six weeks later a third oil company contracted with the owner to handle its gasoline and the equipment of the second company was removed, and the third company installed its equipment. Soon after Nov. 1 the second oil company again was successful in negotiating with the owner and the equipment of the third company was removed and the second company's equipment replaced. The station has since averaged between 900 and 1000 gallons a month.

That means that this station in a year will sell approximately 1½ tankcars of gasoline. The daily sales will average slightly over 30 gallons or approximately 10 gallons for each of three pumps.

Sure I'll continue to handle your gasoline but I want two more pumps because that fellow over there has two pumps to my one now.



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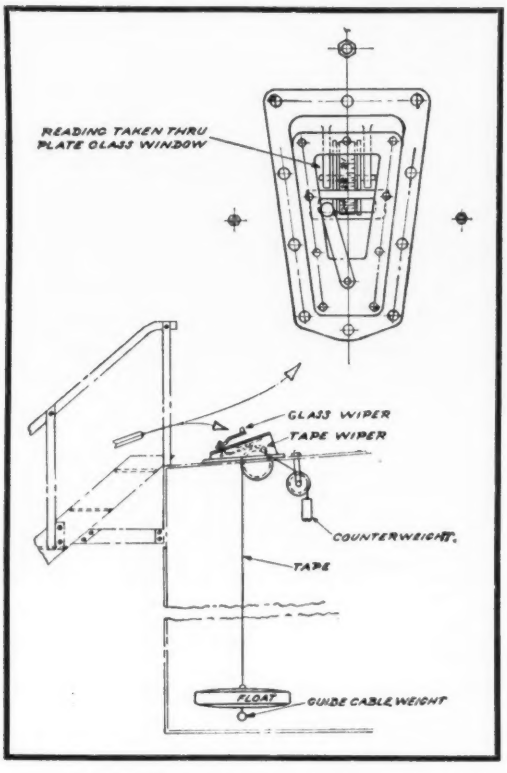

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Shaffer Offers Naphthas To Jobbers

CHICAGO, June 23.—In line with the development of new products, new markets, and new outlets for petroleum products, Shaffer Oil & Refining Co. is offering naphthas to independent distributors, and showing them where it can be marketed.

The outlets for different grades of naphthas are many—printing presses, newspapers, ink manufacturing, industrial concerns, rubber manufacturers, electrical appliance manufacturers, makers of paints and varnishes, cleaners and dyers and numerous others.

Shaffer Oil & Refining Co. points out that jobbers can obtain new naphtha business and also use it as a means of developing gasoline and lubricating oil customers, and that the jobber handling naphtha is in a position to compete in a business like manner for additional petroleum products business.

In the last three years various grades of naphthas have been developed. Approval of the Stoddard Solvent for dry cleaning has been obtained from the Board of Underwriters as the product has to be suitable for cleaning purposes as well as safe from a fire hazard standpoint.

Douglas Goes to Venezuela

LOS ANGELES, June 22.—J. M. Douglas, manager of Union National Petroleum Co., left Los Angeles recently for Caracas, Venezuela, after visiting officials of the Union Oil Co. here. Company drilling is progressing rapidly on the Pantepec property at Venezuela.

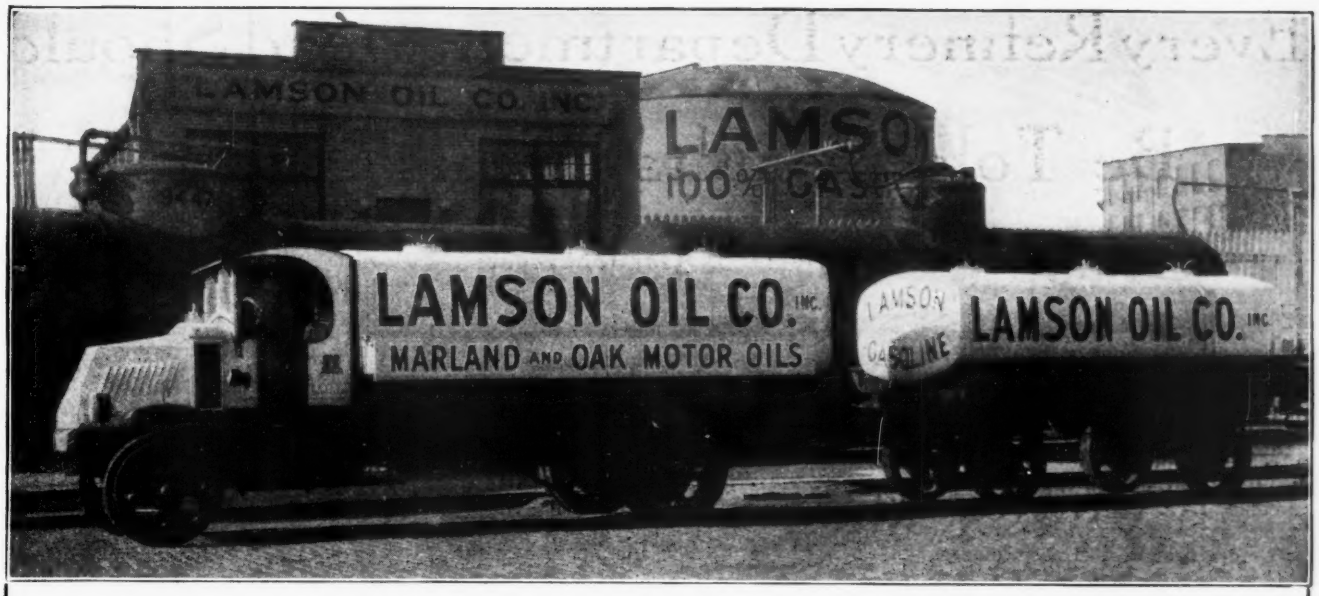
Hazel Goes to International

CLEVELAND, June 23.—Walter T. Hazel has resigned as sales manager of the Parkersburg Rig & Reel Co., Parkersburg, W. Va., to become sales manager of the International Derrick & Equipment Co., Columbus, O. He was succeeded at Parkersburg by Harold Crawford.

Celebrates Seventh Anniversary

CLEVELAND, June 23.—Pocahontas Oil Co. June 21 celebrated its seventh anniversary. The company which began with an idea to sell quality goods and give exemplary service, now operates 59 service stations in greater Cleveland.

NEW YORK, June 21.—D. H. Wallace, vice-president and general manager Wallace, Muller & Co. Ltd., oil and tank steamer brokers, left New York June 19 for a several weeks' sojourn in Europe. Mr. Wallace will spend most of his time with the company's Paris representative, Raoul Massardy.



Semi-elliptical Heil Tanks mounted on a 5 ton A C Mack truck and Lapeer trailer. Each tank has three compartments with 800, 700 and 500 gallon capacities.

HEIL Tanks Cut Delivery Costs

Here's a real saving in delivery costs. The Lamson Oil Co. purchased a tank trailer at a comparatively small additional cost and doubled the capacity of its hauls without materially increasing the operating cost of the unit. They are hauling four thousand gallons for almost the same fixed cost as two thousand gallons. When they wish to use only the truck tank on short hauls, they disconnect the trailer.

The Lamson job should appeal to progressive oil marketers interested in getting the most for their investment in equipment. It offers, like all other Heil Tanks, the best possible advertising medium for your name and product. Heil Tanks advertise as well as carry your product.

All Heil Tanks are carefully tested and inspected before leaving the factory. Each unit is completely equipped to make its operation economical and efficient. And with each tank goes the Heil Guarantee of Quality assuring absolute satisfaction in tank construction and performance. Specify Heil on your next tank order.

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Every Refinery Department Head Should Be Told Results of His Efforts

By D. F. Gerstenberger

SUCCESSFUL refinery operation is dependent not only on the type of equipment used, and the methods employed, but it is also dependent on the men directly or indirectly responsible for the operation. By direct responsibility, I mean those in contact with the operation; indirectly, those who must at times work with or around refinery equipment but are not actually of the process department.

Methods of handling labor for refinery operation and most successful results will be discussed herewith, and suggestions will be made by the writer, as gleaned from actual experience and observation.

The point to be considered in the proper handling of labor in the refinery, is a suitable organization, well cemented together by the appointing of necessary heads and sub-heads to give a harmonious working condition. Care must be taken not to create any conflicting departments and that the department heads are not so far removed from the man in charge that he does not come in frequent contact with them.

Each department head should know definitely what his duties are, what part of the operation he is directly responsible for and overlapping of duties should be eliminated whereever possible.

Each man in charge of a department should be given to understand that he is there for the purpose of guarding the company's interest and he should be kept informed continually of the results being obtained from the operation of which he is in charge. Individual operating cost data wherever possible should be available for him from month to month so that he may be in a position to realize how much is gained from efforts put forth and to keep his department in line.

HE SHOULD be given wide latitude and the responsibility put on his shoulders to maintain his department as reasonably and as efficiently as possible. Every man works best when he knows that results are directly up to him and that he may be called on at any time to give an explanation of the results obtained from his operation.

On the other hand, a man who is continually held down so he can not go ahead on his own initiative is badly handicapped for he can not work as he wishes but must conform to the methods of others and instead of being inspired with confidence he gradually develops into a machine which lacks initiative.

At the same time, every department head should realize that the superintendent is responsible for the plant as a whole and that his success makes the superintendent's work a success, and that his failure is the superintendent's failure.

Consequently they should keep him advised of their every move so that when essential he may help steer them in the right direction and may discuss his views with them with the idea of obtaining the best results.

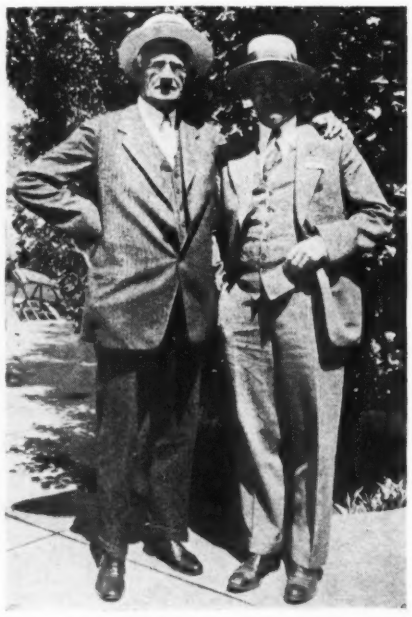
Essential points must, of course, rest with the man in charge, but an hour spent in showing a department head the advisability of following certain procedure, brings more reward than an order to work a certain way against his will.

IN A great many large plants it is felt that the operating departments are completely separate from the repair departments and have very little in common. As a result, they are handled almost as two separate concerns might be handled. The writer believes that this is a mistake.

The repair division is just as interested in the operation as is the operating division for were it not for the operation of the refinery there would be no repair division. Consequently the writer believes that the sub-heads of this division should be kept posted as to the status of the refinery operation. If their interest is kept up thus they will feel that they have cause to speed up repairs that dovetail into the operation.

Like the operation sub-head, they should be given the opportunity to work out their problems as much as possible, being guided in the right direction as is necessary by the superintendent.

Any man who sincerely tries to do good work, likes to hear occasionally that his efforts are appreciated. An occasional boost will spur him to greater endeavor. On the other hand, a man who does not measure up should be advised also, for if he is allowed to continue thinking that he is producing results and is not given the opportunity to correct mistakes he is training himself in the wrong direction and may spoil what might otherwise have been a good man.



J. Edgar Pew, vice president, Sun Oil Co., and "Brick" Elliott, Elliott Core Drilling Co., Los Angeles. Mr. Pew is general chairman of the A. P. I. standardization committee. Mr. Elliott flew to Colorado Springs in his International seven-passenger airplane and gave many rides to those at the Broadmoor for the A. P. I. meetings. Photo taken at A. P. I. meeting in Colorado Springs, June 12-15

A MAN who can not accept a certain amount of responsibility is a poor man to have in charge of a department for he is simply a figurehead and the man who works well when given free rein is usually a poor man when tied down and such men must be handled with consideration for the best results.

A man who holds those under him in constant suspicion does not get very far. Confidence reflects confidence every time. A division head likes to feel that his superior places confidence if not always direct approval in his efforts. He likes to know that his efforts are looked upon as having a good motive, and invariably he will respond to this and extend himself to the best of his ability.

Likewise, a department head must realize that those in charge of him and his department have a right to know every move made in his de-

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Announcement

We wish to announce the consolidation of The Widdell Engineering Company and Arthur G. McKee & Company.

H. E. Widdell, formerly President of The Widdell Engineering Company, becomes Vice President of Arthur G. McKee & Company, in charge of Refinery Design and Construction.

Our Oil Refinery Division includes experts in every phase of the industry and we shall be pleased to have you consult us regarding any of your operating problems or proposed plant improvements.

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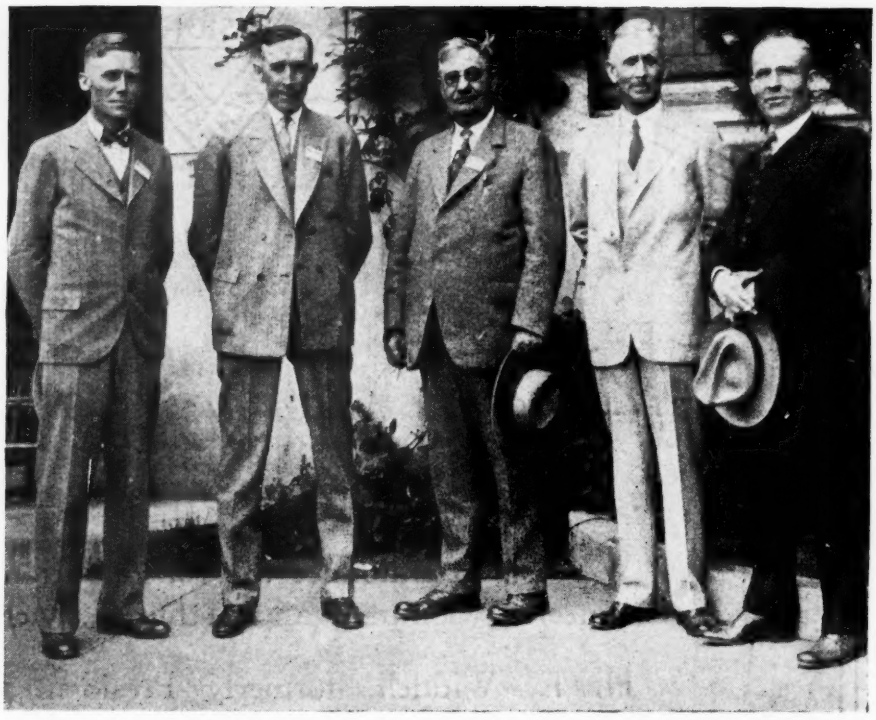

M. G. Cheney, Ansac Oil Corp.; F. R. McGrew, Standard Pipe Line Co., Shreveport; H. A. Melat, Gulf Production Co., Fort Worth; H. B. Simcox, Continental Oil Co., Denver; R. S. Shannon, Continental Oil Co., Denver. Photo taken at A. P. I. Colorado Springs meeting, June 12-15

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WASHING oil drums with the aid of Oakite materials costs less — as many Oakite users know.

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partment, and that when the operation for which he is responsible is checked over by those to whom he is accountable that it is done for his benefit as well as for the benefit of the company.

With this understanding, a department head will welcome an investigation of the particular operation that he is handling.

GIVING each superior the opportunity of handling his department does not mean making every subhead in the plant a separate general with his own army. There should be no personalities in the well formed organization, but each should be working together for the common good.

No link of a chain can help the chain when off by itself. On the other hand, when joined with the other links in proper unity, it is an essential part of the whole and accepts its responsibility for the load carried in conjunction with the others.

Continual friction between department heads, no matter how good each may be in his particular little kingdom, breaks down the morale of an organization. The weak links must be weeded out and replaced by stronger ones which will join properly with the others and pull in the same direction.

The department heads should realize that they are not working for individual glory but for the glory of the company and each should be just as much interested in the refinery as a whole as in his own department. No department of a refinery can stand by itself but the entire process must be a success.

A man who is really sincere in his purpose likes to be considered as an investment. His efforts should be taken into consideration and he should be given an opportunity to work out his salvation but efforts alone do not make dividends. Results are the things that count. On the other hand, in considering results from such an investment, the opportunity for results should also be considered.

No man would put money out as an investment where he knows he may obtain only 4 per cent, and expect a return of 8 per cent. But he has every right to expect the 4, and perhaps sometimes a special dividend. A man put in charge of a department should know what return is expected from him before he takes up his duties, and if he is the right man he will endeavor to bring in the special dividend as frequently as possible.

The superintendent who gets out into his plant, and keeps in actual contact with the operation, is the one who is looked up to for proper guidance. The enthusiasm that he expresses over the operation is contagious, and is soon reflected in the men who are directly in charge.

Likewise, the department heads should carry this enthusiasm to the operators for they, like all others, will work better if they know what they are striving for than if they are simply carrying out orders. There is a certain amount of routine work that is necessary in every organization but it is savored considerably by a

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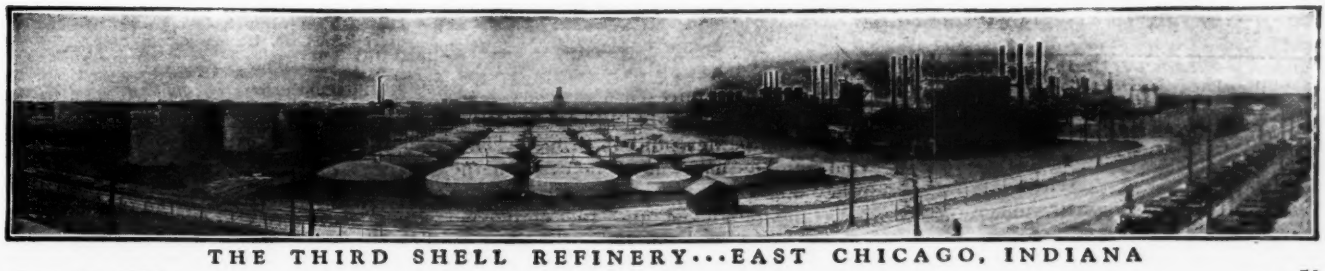

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proper understanding of the goal being sought.

Confidence in a man's ability to do his work properly should be expressed right on down the line for every man will work best when he realizes that his efforts are sown in fertile ground. If the men in the entire operating department are enthusiastic and desirous of obtaining the best results they are going to strive continually to overcome difficulties. And as a result the superintendent and department heads can solve many of their problems by deductions from ideas of the operators.

VARIOUS refinery meetings for the purpose of discussing the problems confronted are desirable. The department head should have meetings regularly so that his men may be brought together and absorb each others' views and so that he may impress on them any particular difficulty which is being experienced at the time and convey to them his suggestion for overcoming it and hear their thoughts in the matter.

Likewise, the superintendent should call his department heads together regularly for discussion of similar problems and for the adjustment of any seeming difficulty between departments. It should always be understood that it is the method of operation that is being discussed and not any one's particular ideas. These men should be taught to bear in mind the interest of the plant as a whole, for only by so doing will they gain any personal benefit. An organization of men who are true to their own convictions, and yet are open to suggestion is hard to beat; a successful one will be molded from this sort of clay.

The writer has been confronted at times with the problem of having two apparently interested men in positions where they were pulling against each other, thereby upsetting without their knowledge, the entire organization. To follow the easiest path, separating these men where they would not be in contact with each other, might seem to be the solution. But it is not the solution, for where is the refinery whose departments are so completely separated that they do not have to cross paths at times? The only answer is to place these men in a position where they will be in constant contact and give them to understand that they must work together.

Either they will straighten out and work for the good of the organization or the man who is in the wrong will show himself for what he really is and the organization is consequently better off without him.

Employees' representation has been gone into extensively by some of the larger companies, and if properly carried out has many good points. On the other hand it can be a detriment to both the employee and the employer. In the opinion of the writer, men should be advanced in position as the opportunity occurs, by the results of their work and not by the length of service.

Although the type of man who does not care to extend himself may feel that this is not desirable, the average workman would rather have the opportunity of reaping a harvest of work than one of days. He has something to work for and strive for, and after all, a man measures his life by the things he tries to attain, more than by those that he has.

Bowman Manages New Office

LOS ANGELES, June 21.—Announcement is made of the appointment of Roger Bowman as manager of the Cleveland office of Merco Nordstrom Valve Co. Mr. Bowman will be in complete charge of that territory. New offices also are being opened in Boston and Dallas, the Boston office at 184 Boylston street and the Dallas office in the Magnolia building.

CHICAGO, June 23.—C. H. Warner, Jr., Chicago manager for Altitude Petroleum Co. of Tulsa is on a month's vacation trip to California with his family, visiting his parents. He will return shortly and occupy the new quarters which the company has provided for the Chicago office at 29 South La Salle St., suite 428.

Preferred Oil Burners, Inc., Peoria, Ill., has announced Underwriters' Laboratories, Chicago, have listed as standard the D-O Junior oil burner for domestic heating, made by it. This burner is designed for small homes. It is semi-natural draft and requires only a small alteration to the door of a warm air furnace in installing. It is fully automatic. It is the fourth and smallest member of the Hart line.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

31626.—**Semi-refined paraffin wax**, Santiago, Chile, agency.

31765.—**Natural petroleum and ball-bearing grease**, Stuttgart, Germany, purchase.

31770.—**Lubricating oils and greases in barrels**, The Hague, Netherlands, purchase and agency.

31771.—**Lubricating oils and greases**, Chemnitz, Germany, purchase or agency.

31772.—**Lubricating oils, diesel oil, gasoline and kerosene**, Algiers, Algeria, purchase and agency.

31773.—**Crude petrolatum**, Hamburg, Germany, agency.

31774.—**Lubricating oils and paraffin wax**, Genoa, Italy, agency.

Wadhams Buys Airplane To Promote Sales

MILWAUKEE, June 23.—The first plane in Milwaukee to be owned by a private corporation will land at the Milwaukee county airport July 1. A Fairchild five-place cabin monoplane will carry Harger Dodge, vice-president, and Frank Casey, advertising manager of the Wadhams Oil Co., purchaser, from New York to Wisconsin.

The plane will be used to promote good will between Wadhams' main office and the dealers and agents scattered throughout Wisconsin, Illinois, Minnesota, Michigan and Iowa. It also will be used to promote consumer sales.

After two weeks in Milwaukee, during which dealers, customers and employes of Wadhams will have a chance to ride in the ship, the plane will make a two-day tour of the state. This trip will be primarily to get data on landing fields for a more leisurely tour to be taken at the end of July. On this trip dealers, salesmen, public officials and press representatives will be entertained with an aerial view of their cities.

The ship will also make the rounds of Wadhams' out-of-Wisconsin dealers, as well as visiting the company's oil fields in Oklahoma.

Agnes Corcoran, 12 years old, daughter of the president of Milwaukee's common council, will christen the ship with a bottle of gasoline on July 8, naming it from one of many suggestions being handed in to Mr. Casey by the Wadhams employes.

Twelve thousand persons have been invited to the christening.

Ingersoll-Rand Co., 11 Broadway, New York, has reprinted in book form, attractively covered, the fourth section of "Modern Central Stations." The book contains reprints of recent papers on central power stations which have appeared in various technical journals. It has been put out to take care of requests for descriptive data on new stations which the company receives.

Celite Products Co., Los Angeles, has off the press bulletin No. 141, entitled "The Insulation of Breechings and Stacks," which gives specifications on the lining of stacks and breechings on the inside of the steel with Sil-O-Cel standard brick. The advantage of this method of inside lining, according to the company, is that the steel if protected from excessive temperatures will last longer than if covered with insulation on the outside.

Specifications are included for outside covering of breechings and ducts where inside lining is not feasible. Drawings are also included showing method of lining.

Works Faster Than Fire!

At last the extraordinary fire hazard in flammable liquids has met its master in the

Phomene

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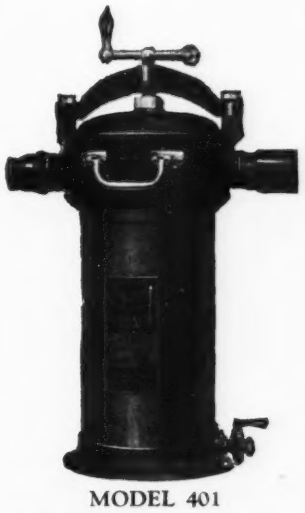

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79 New Montgomery St. **San Francisco, Calif.**

Gas Line Finished In Record Time

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, June 25

APPROXIMATELY 300 miles of combination 22-inch, 18-inch and 16-inch pipe line construction from Waskom, Texas, to the Gulf Coast was recently completed for the Dixie Gulf Gas Co. in the record time of 104 days.

The system, which connects at Waskom with transmission lines out of North Louisiana, provides outlet for approximately 150,000,000 cubic feet of gas daily frcm the general Shreveport territory to the Houston and Port Arthur districts of Texas.

A number of construction features were incorporated in the project, including first use of such size and quantity of the new cold-rolled welded steel pipe manufactured by the A. O. Smith Corp.; the speed with which the line was completed; and the installation by Hope Engineering & Supply Co. of vertical compressor units, which are described as most efficient and requiring considerably less space for setting than horizontal machines.

The cold rolled steel pipe, $\frac{7}{16}$-inch in wall thickness, was delivered in 30-foot lengths instead of the customary 20-foot sections. This facilitated pipe laying, although the stringing of the line was slower than it would have been normally because only one joint could be transported to each truck load. The right-of-way follows railroad lines closely, however, and improved highways aided in offsetting the transportation handicap.

Hope Engineering & Supply Co., which laid the main line south from Waskom, used Buckeye traction ditchers for cutting the trench; Fordson tractors for placing, joining and lowering the pipe sections; and W-K-M booms and winches for equipping the machinery.

Six main line crews and two river crossing crews were used in the construction work. The total payroll for the job, including labor, totaled about 4000 men.

River crossing construction proved the most tedious part of the work, but considerable swamp country was

Above—Lowering 30-foot lengths of cold-rolled steel pipe into ditch across east Texas as part of construction work incident to building Dixie Gulf Gas Co. line from Waskom to Houston and Port Arthur districts

Left—Hope vertical type compressor units installed at Waskom, Texas, main station on Dixie Gulf Gas Co.'s new pipeline to Houston and Port Arthur consuming districts

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SEABOARD CHEMICAL COMPANY

92 West Street — **New York City**

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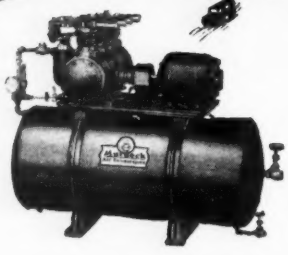
that Increase your Profits by Improving your Service-



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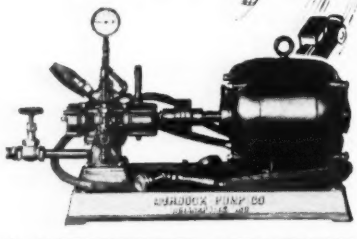

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Advanced Rotary Type Fire Engine Pump Construction — the same terrific direct water pressure (no air)—dependable performance—simple construction—easy operation of the most successful fire engine pumps. It's a masterpiece. *Cleans cars faster, better, easier and more profitably.*

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avoided by changing the route of the pipe line from that originally planned.

The original route called for construction south along the Texas-Louisiana boundry to Port Arthur, thence west to the Houston district. As built, the line crossed five rivers and several bayous, but only one of these offered any unusual problems to surmount. The Neches river, near Port Arthur, has changed its course, resulting in a wide overflow bottom between the old bed and the new. There it was necessary to install five manifolded 10-inch crossing lines, each 7200 feet long.

A special dredging job was also required on the Orange branch at the Neches river crossing. The Neches has a 30-foot channel as far inland as Beaumont and all pipe lines are required to be 10 feet below the ship line.

The master compressor station at Waskom is equipped with 24 Hope vertical compressor units of 165 horsepower rating each; the smaller stations at Nacogdoches and Goodrich contain the other four compressors, a total of 28 being used on the system from Waskom south.

LOS ANGELES, June 22.—Construction of a new natural gasoline absorption plant has just begun on the property of the Bankline Oil Co. at the corner of Willow and Temple streets, Long Beach. J. A. Campbell, natural gasoline engineer with headquarters in Long Beach, was awarded the contract for the construction of the plant with a capacity of 20,000 gallons.

New Equipment

Chicago Pneumatic Tool Co., 6 E. 44th St., New York, has published bulletin 797 in which is described and illustrated its line of P6-DGL portable gasoline engine driven compressors now available in sizes of 100, 160, 220 and 310 cubic feet per minute. All are equipped with Simplate valves and auto-pneumatic throttle which slows down the engine to idling speed during unloaded periods and causes the engine to speed up just prior to loading, resulting in a saving of fuel and durability, the company claims. The compressors are furnished with steel or rubber-tired wheels; or mounted on a CP trailer or semi-portable skid.

* * *

Pacific Copper & Brass Works, Inc., Los Angeles, has issued a folder describing its Pacific junction boxes. These boxes are equipped with elliptical plugs which have an inwardly divergent taper and may be inserted through their own seats. They are drawn into place with a stud nut and crab, forming a tight metal-to-metal joint. The openings are so located and of such size that cleaning and rolling tools may be easily inserted.

* * *

Sharpsville Boiler Works, Co., Sharpsville, Pa., manufacturer of oil equipment, has placed on the market a flood light for filling station and industrial plants which, added to its present line, completes its line of bulk and service station equipment.

Development of Cracking Art

(*Continued from page* 49)

which any industry may well be proud. It has not only resulted in the conservation of petroleum and natural gas, but the progressive oil companies have found it to the benefit of their stockholders to prevent all waste and to utilize the raw material in the higher forms."

The book is published by Beacon Publishing Co., New York.

* * *

Conservation of crude oil effected through the increased efficiency of refineries and reduction of evaporation losses, the cracking processes and the production of natural gasoline, based on the 1914 refinery recovery of 17.1 per cent of gasoline from crude oil. Amounts in barrels.

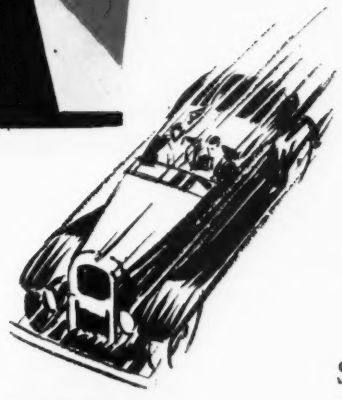
(Taken from Westcott's "Oil—Its Conservation and Waste.")

Year	Through increased refinery efficiency and reduction of losses by evaporation	Through cracking processes	Through recovery of gasoline from natural gas	Percentage to crude production United States	Percentage to crude production World
1916	.....	40,600,000	14,400,000	18.3	11.9
1917	24,200,000	57,100,000	30,300,000	33.3	22.2
1918	87,800,000	68,900,000	39,300,000	55.1	38.9
1919	81,700,000	90,600,000	49,000,000	58.5	39.8
1920	133,000,000	94,400,000	53,600,000	63.4	40
1921	135,200,000	124,300,000	62,700,000	68.2	42.1
1922	193,000,000	148,400,000	70,400,000	73.9	48
1923	262,600,000	165,700,000	113,600,000	75.9	53.3
1924	316,300,000	200,900,000	130,000,000	90.6	63.9
1925	247,000,000	401,100,000	157,000,000	105.4	75.3
1926	295,600,000	548,200,000	189,800,000	134.1	94.3
1927	321,800,000	592,000,000	226,100,000	126.9	91.4
Total	2,098,200,000	2,532,200,000	1,136,200,000	85.8	58.9

Grand total 5,766,600,000 barrels. Daily average 1,315,700 barrels.

MORE THAN 40% BENZOL EQUIVALENT

SPARCO is a **natural** anti-knock gasoline. Without the addition of anti-knock compounds, Sparco equals the performance of any fuel. 4000 carloads used within the past year have proved it.



ANTI KNOCK Sparco GASOLINE

Made Exclusively from Smackover Crude

Sparco's high quality never varies. Smackover Heavy, containing the aromatic series of hydrocarbons, is authoritatively recognized as producing superior anti-knock gasoline. Manufactured with strict attention to temperatures and pressures, Sparco burns cleanly, slowly, evenly, giving sustained power.

A Benzol Equivalent of more than 40% makes Sparco **a better fuel for any motor and an essential fuel for high compression motors.**

Sparco Anti-Knock Gasoline

Manufactured by

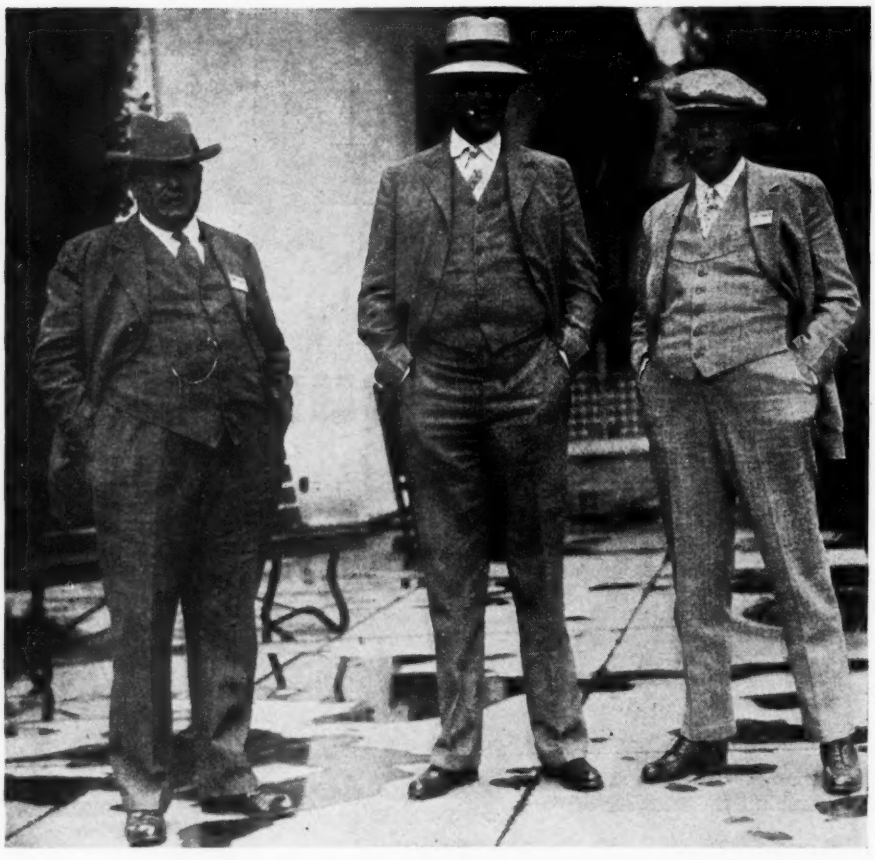
The Shreveport Producing & Refining Company, *Inc.*

SHREVEPORT . . . . . LOUISIANA

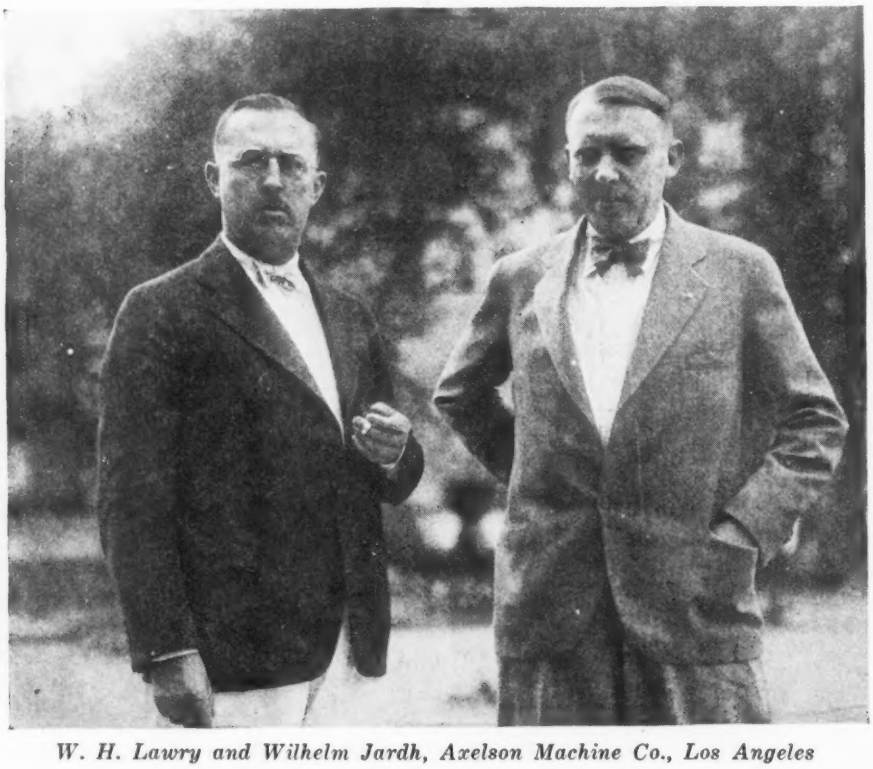
For all details, write, wire or phone

Oil Men, Equipment Makers at Colorado Springs

Dr. W. P. Haseman, chief of research department, Marland Oil Co.

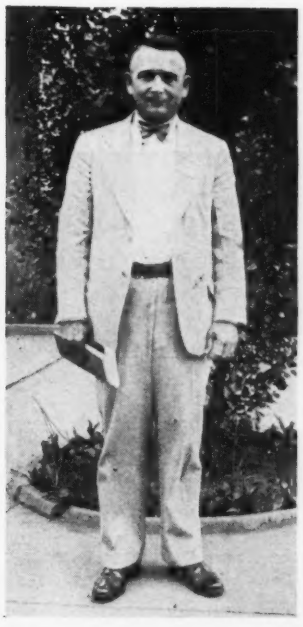


L. S. Black, Beaumont Iron Works Co., Beaumont, Texas; William Simpson, Standard Oil Co. of California; George Keneston, Standard Oil Co. of California



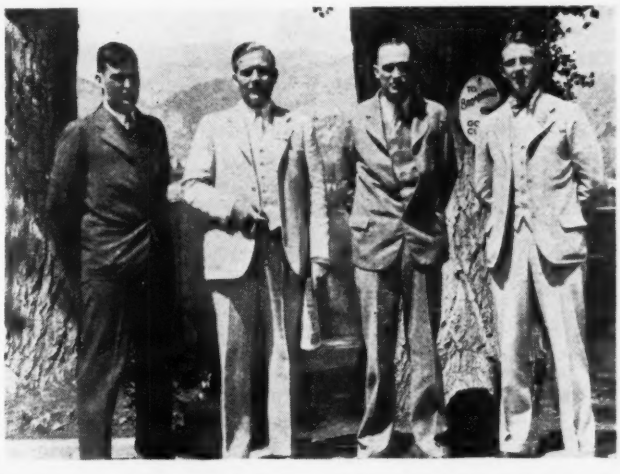
W. H. Lawry and Wilhelm Jardh, Axelson Machine Co., Los Angeles

C. E. Beecher, petroleum engineer, Empire Oil & Refining Co.



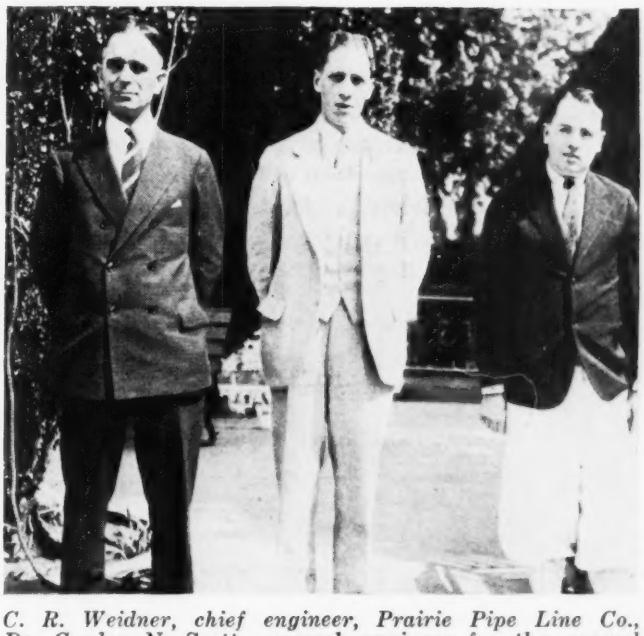
From left to right are Kenneth B. Nowels, Bureau of Mines petroleum engineer, Laramie, Wyoming; L. B. Holland, Phillips Petroleum Co., Bartlesville, Okla.; W. W. Scott, chief petroleum engineer, Humble Oil & Refining Co.; Fred E. Wood, petroleum engineer, Midwest Refining Co., and chairman of Rocky Mountain district, a new division

W. K. Whiteford, Barnsdall Corp., Tulsa; J. R. McWilliams, petroleum engineer, Skelly Oil Co.; F. B. Hall, petroleum engineer, Tidal Oil Co.; Kenneth A. Covell, Indian Territory Illiminating Oil Co. Mr. Whiteford is secretary of the Mid-Continent district of the new A. P. I. division



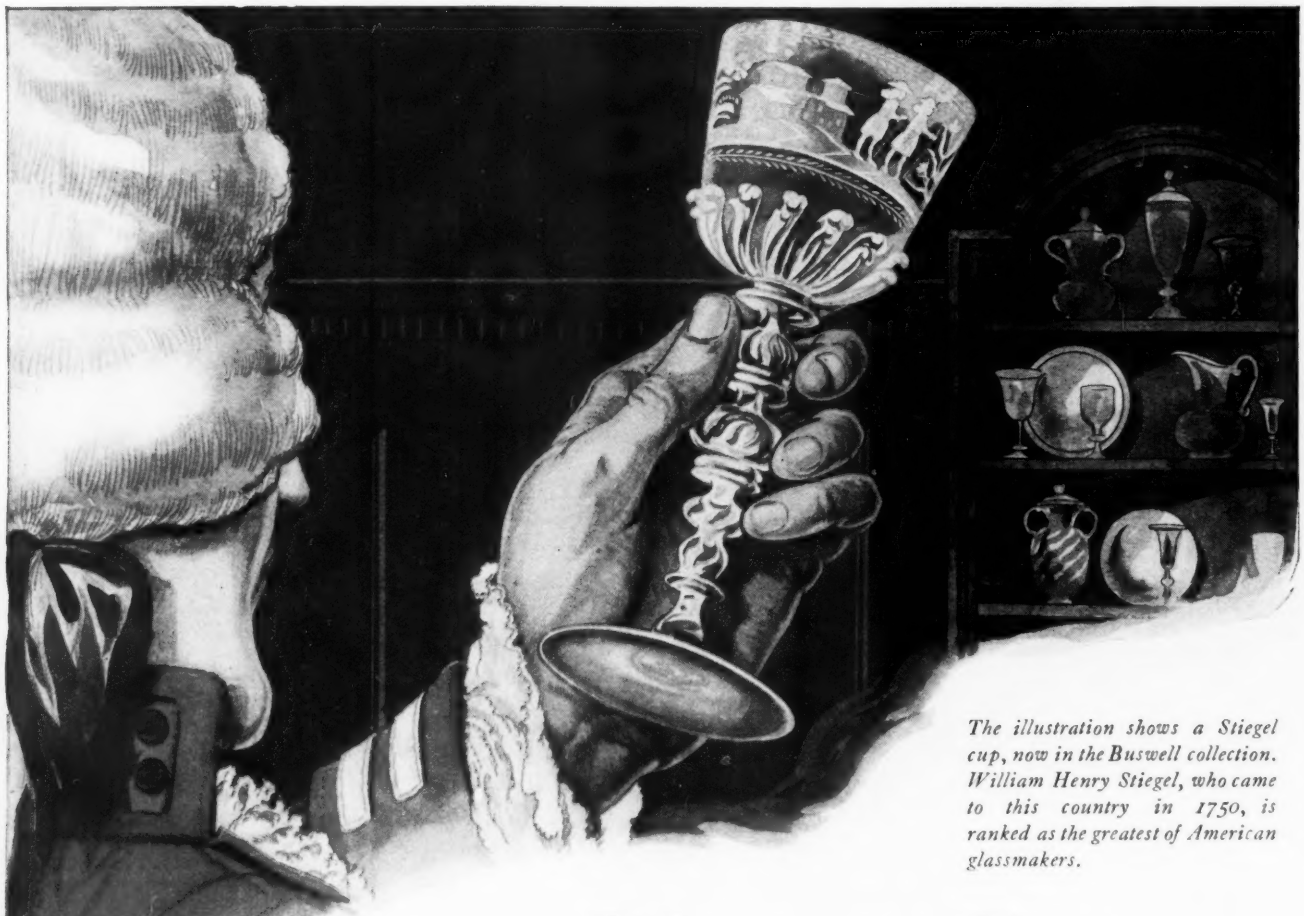
Photographs of oil men and equipment manufacturers on these two pages were taken at the meeting of the Division of Development and Production Engineering, American Petroleum Institute, at Colorado Springs, Colo., June 12, 13, 14 and 15

E. H. Griswold, petroleum engineer, and K. C. Sclater, chief petroleum engineer, Marland Production Co.



C. R. Weidner, chief engineer, Prairie Pipe Line Co., Dr. Gordon N. Scott, research engineer for the general corrosion committee of the American Petroleum Institute, and William G. Heltzel, Sinclair Pipe Line Co.

CRYSTAL PURITY



The illustration shows a Stiegel cup, now in the Buswell collection. William Henry Stiegel, who came to this country in 1750, is ranked as the greatest of American glassmakers.

—in Oils as in Glassware—

results from the use of selected raw materials and the thorough elimination of all impurities. The maker of fine glass must use selected sand and must remove every foreign substance, to obtain in his product the sparkling brilliance which will mark it as exceptional. In the same way, we use only the finest paraffin crude, in producing our Bright Stocks, and remove impurities by the most thorough methods known to refining science, including filtration by the perfected ***contact process.***

By these methods the carbon content of IND-O-LUBE Bright Stocks is reduced to less than 1.5%. Note the other exceptional specifications of this superior product.

The sparkling clarity of IND-O-LUBE Bright Stocks is as positive a hallmark of quality as is the crystal brilliance of Stiegel glass.

SPECIFICATIONS

Gravity	24.5-25
Flash	525-535
Fire	600-610
Viscosity at 210	150-160
Pour	10-15
Carbon Residue	1.5% Max.
Ash	.001% Max.
Reaction	Neutral
R.E.	20 Max.
S.E.	1200 Max.
Color	1 3/4 to 1 1/4 T.R.

INDEPENDENT OIL AND GAS COMPANY

— PRODUCERS REFINERS MARKETERS —

TULSA, OKLA.

Cable Address "Indol"

Truck and Trailer Hauling of Gasoline Can Cut Transportation Costs

By O. E. Brown[1]
and
H. L. Lowry[2]

THE oil industry appears to be fully justified in the considerable interest manifested right now in possible savings to be effected in the bulk hauling of petroleum products. The percentage of the total cost of gasoline and kerosene that may be attributed to transportation charges of various kinds, is surprisingly large.

A start toward reducing these transportation costs has been made by a number of the larger refiners and distributors, through the extensive use of semi-trailers and four-wheel trailers.

These units have so far demonstrated their adaptability to three distinct phases of distribution, and the amount of saving which they may be expected to yield is pretty well established by experience tables.

The first phase is in bulk hauling from refinery to bulk stations, within a radius of 75 to 100 miles. This figure will, of course, vary with competing freight rates, type of country, condition of roads, etc. In some instances it might be extended another 200 miles, but we will endeavor all through our discussion to assume average conditions.

The second phase is bulk hauling from local refinery or bulk stations to filling stations in and around the same city. This will be a comparison between cost of delivery by tank wagon and by semi-trailers within the environs of a single large city.

The third phase is bulk hauling from refinery or large central bulk station direct to filling stations located in cities or towns within a radius of 50 or 60 miles. In effect, this is a combination of the possible savings in the above two illustrations.

Let us trace through the equipment that would be used in each instance, its cost, how it would be operated and what saving might be expected from its use.

For our purposes, we shall adopt a 3½-5-ton tractor truck, and a 2500-gallon five-compartment oval tank with 3-inch pipe and faucets, mounted on an 8-10-ton semi-trailer of the full automatic type with brakes (see accompanying illustrations). On the long distance hauling, we will add an 1800-gallon three-compartment oval tank, mounted on a 5 to 6-ton four-wheel trailer with brakes. These sizes are used for the reason that they will come within the legal road limits of any state allowing 20,000 pounds gross on four wheels, with maximum of 16,000 pounds per load-carrying axle. As most states equal or exceed these weight limits, our illustration will be rather widely applicable, and in most states a somewhat larger load could be carried.

We will not at the moment go into the question of weight limits in effect during the spring thaw period, as only about one-fourth of all states have such laws, and it is expected that pneumatic tire equipment in those will overcome this limitation.

We now have our equipment, and going back to our first phase, let us observe this equipment in service between a refinery at point A and a bulk station 44 miles distant at point B. Instead of a refinery at point A, we may of course, substitute a large central bulk station with a smaller bulk station at point B and the result would not be affected.

In either instance it would serve as a comparison with the existing cost of tank car shipments over a 44-mile haul.

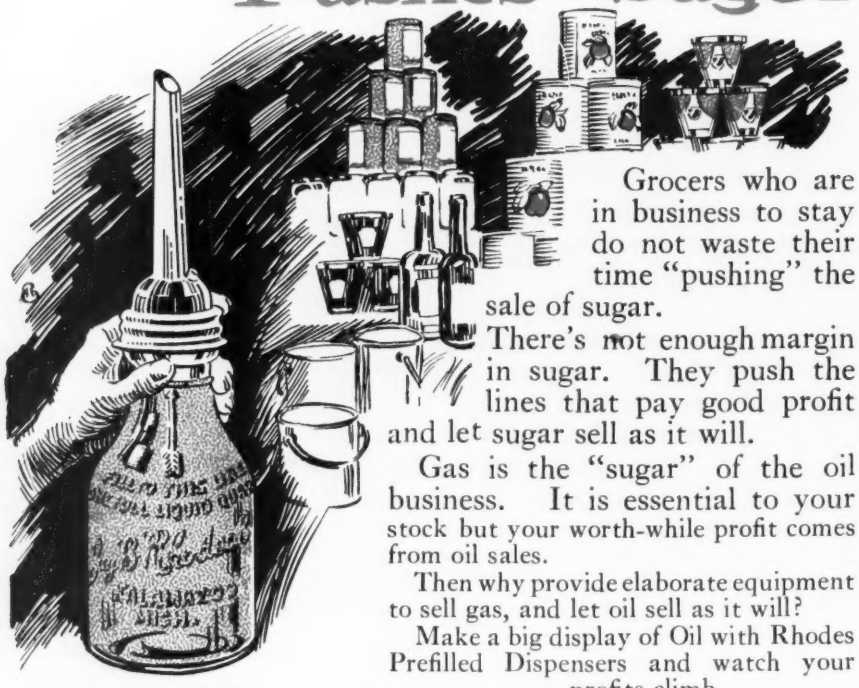
THE first problem is to determine how many round trips per month or year can be reasonably made, from which is computed the gallonage delivered, etc. An excess of enthusiasm at this point is certain to throw out any calculation which may be made later. The points commonly overlooked are: sufficient time to maintain properly the equipment, time for drivers to eat or sleep, and adequate time for delivery of the load and time to reload. As this particular haul is being made over good hard surface roads with few hills, we believe the following table will prove sufficiently conservative:

	Time Hours
Distance—44 miles	
Time to load and get away	1
Av. loaded speed—6 mi. per hr.	7½
Time to unload and get away	1
Av. unloaded speed—10 mi. per	4½
	14
Half trip, av. of loaded & unloaded	6
Loading or unloading time	1
	21
For maintenance of equipment	3
	24

1—Trailer dealer and consulting equipment engineer, Firestone Tire & Rubber Co., Akron.
2—Cleveland district manager Davis Welding & Mfg. Co., Cincinnati.

Tractor truck, semi-trailer and 4-wheel trailer outfit. The semi-trailer tank carries tank carries 2500 gallons in five compartments and the 4-wheel trailer carries 1800 gallons in a 3-compartment tank

No Grocer "Pushes" Sugar



Grocers who are in business to stay do not waste their time "pushing" the sale of sugar.

There's not enough margin in sugar. They push the lines that pay good profit and let sugar sell as it will.

Gas is the "sugar" of the oil business. It is essential to your stock but your worth-while profit comes from oil sales.

Then why provide elaborate equipment to sell gas, and let oil sell as it will?

Make a big display of Oil with Rhodes Prefilled Dispensers and watch your profits climb.

RHODES PRE-FILLED OIL DISPENSERS

Jay B. Rhodes Company

Kalamazoo, Michigan

PETROLEUM PRODUCTS
From All Fields

Carloads, Tank Cars, and Cargoes.
For Domestic or Export.

GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE — RED OILS
WAX — PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

For 35 years of reliability, service and integrity—
This Company enjoys an International Reputation

JAMES B. BERRY SONS' CO., INC.
General Office—Oil City, Pa.

District Offices at
New York, Philadelphia, Boston, Chicago
London — Hamburg

Cable Address—JASBER Oil City *All Codes*

From the above, it would appear that the maximum which may be allotted is 1½ trips each 24 hours for 300 days each year. Two drivers would be required, and as these estimates are conservative, more idle time than is shown would probably be available.

THIS gives us a starting point of 132 miles per day for 300 days or 39,600 miles per year, delivering an average of 6450 gallons each 24 hours.

Reference to the table on costs of hauling will make clear the means of arriving at investment, depreciation, interest on investment, and other similar fixed charges. The price used for the tractor is an average of five major jobs. It has been depreciated on a three-year basis with a trade-in allowance.

The trailers and tanks have been depreciated on a 10-year basis with no trade-in value at the end of that time. Tires have been figured at 15,000 miles for the tractor and 40,000 miles for the trailers. Oil and gas are both conservatively estimated. For mechanical maintenance of equipment, 1½ cents per mile is used and has in several instances proven adequate for equipment in this type of service. Taxes and license are figured at the present existing rates in Ohio. Garage and insurance is purposely figured at higher than the average.

On this basis, we appear to have arrived at a total cost of $34.22 per day, handling 6450 gallons, or a total delivery cost of 5.3 mills per gallon. After going over this table, if you feel that all properly chargeable items have been included on a fair basis, it would seem we have arrived at a cost considerably lower than usually results where other methods of transportation are used.

THE second phase, delivery from refinery or central bulk station to local filling stations, involves problems other than the equipment directly concerned. The time study which we have just completed assumes equipment with 3-inch pipe and faucets, preferably manifolded to empty from either side or from a side and rear through the operation of positive shut-off valves.

If these same figures are to be used, or similar ones so that the fullest advantage may be taken of the speed in unloading, the operator must concern himself with the size of filler pipes and vent pipes in his underground storage tanks.

Many companies are equipping all new installations with 3-inch filler pipes with tight threaded or quick-coupling connections. Others are going back over their old installations and putting in the larger fill pipes.

The importance of this will be apparent when it is considered that a 2500-gallon trailer tank may be

P. I. W. Products Include

"Fluid Fusion" Welded Stills.
"Fluid Fusion" Welded Steel Pipe.
"Fluid Fusion" Welded Boxes, Bins and Kettles.
Tanks up to 120,000 barrels capacity.
"Pennsylvania" Tank Cars.
Process Industry Equipment.
Oil Refining Equipment.
Elevated Steel Tanks.
Penstocks.
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Galvanizing Kettles.
Smokestacks.
Agitators.
Blast Furnace Equipment.
General Light and Heavy Steel Plate Construction.
P. I. W. Steel Shipping Barrels.

Light yet Tight

SHIPPERS of liquid commodities having a flash point above 80°F. calling for a steel barrel of light yet tight construction, will find the P. I. W. Light Gauge Steel Barrel admirably meets their requirements.

Hundreds of thousands of them in every day use for transporting a wide range of products have conclusively demonstrated the universal satisfaction which they give to shipper and receiver alike.

Turned out on a production basis in all the Standard sizes, or in specially designed shapes and sizes to meet individual needs, they are sold at prices that compete favorably with less desirable containers.

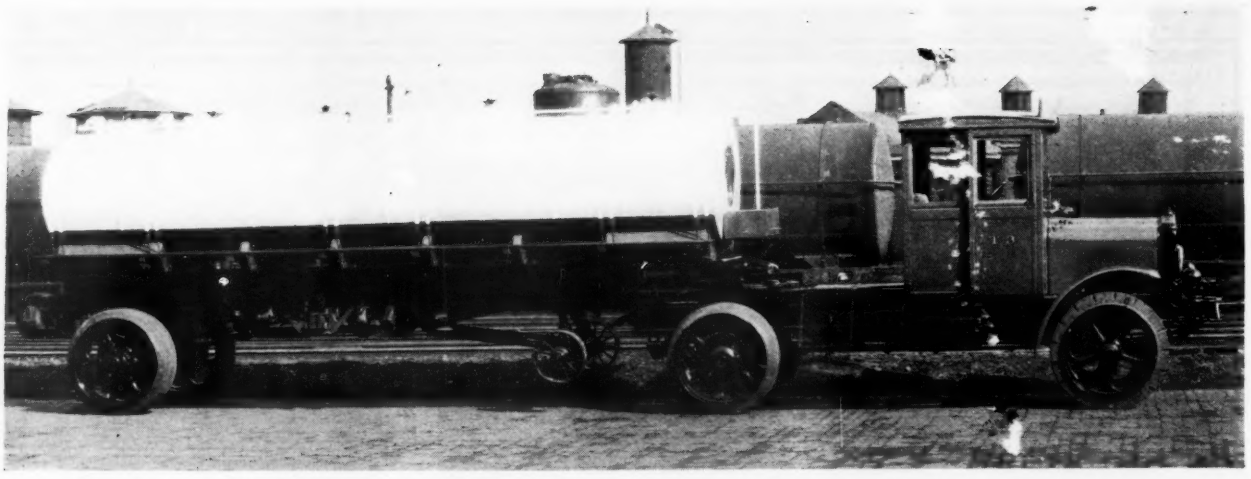
P.I.W.
STEEL BARRELS

AGENTS

Philadelphia - - - - - - - - - - 7005 York Road, Geo. W. Bakeoven
Cincinnati, Ohio - - - - - - - - - 224½ East Fourth Street, J. A. Bauer
Buffalo, N. Y. - - - - - - - - - - 1579 Niagara Street, John Carey
Detroit, Mich. - - - - - - - - 222 West Larned Street, C. R. Harvey
Wilmington, Del. - - - - - - - - - 4052 Du Pont Bldg., John Keesey

Branch Plant: **Beaumont, Texas**

THE
PETROLEUM IRON WORKS
COMPANY
SHARON, PA.
NEW YORK
CHICAGO
HOUSTON
TULSA



Tractor truck and semi-trailer carrying 2500 gallons of gasoline in five compartments

emptied in approximately 20 minutes through 3-inch pipe and faucets, where 40 to 45 minutes will be required through 2-inch pipe. In arriving at whether a unit may make 4 trips or 5 trips per day, this difference in unloading time alone is frequently equal to an extra trip—which amounts to 2500 gallons per day delivered, or a reduction of one-fourth in the cost per gallon delivered.

Where larger fill pipes are installed, the vent may possibly become the limiting factor. One refiner who has been all through this problem discovered that a normal vent was sufficient if located at the far end of the tank from the filler pipe. If located in the center of the tank, the escaping air carried a spray of gasoline into the vent, considerably limiting its venting capacity. Where it is not possible to so locate the vent, a slightly larger size is recommended.

DURING the period when a readjustment is being made in the storage facilities, quick-couplings may be carried for the end of the hose, one being equipped with a short length of 2½-inch pipe, one with a 2-inch pipe and another with 1½-inch or 1¼-inch pipe, so that a driver could in every instance take advantage of the greatest flow which each storage fill pipe would accommodate.

ANY distributing problem involving congested city traffic must start with a study of routing, loading, unloading and running time, from which is definitely determined the possible number of trips and total gallonage per day. An idea of how this is arrived at may be had from the accompanying tabulation of one such route using only a 2500-gallon semi-trailer tank. (See accompanying illustration.) The elapsed time of 2 hours and 9 minutes is fully accounted for. Similar tabulations of remaining routes were the basis of establishing a schedule of four trips per 9-hour day for this particular unit, delivering a total of 10,000 gallons.

A daily cost of $21.49 was then developed by the method previously explained in detail. Delivering 10,000 gallons per day, it then appears we have a per gallon cost of 2.1 mills. This considerably lower cost than was reached in our previous study is easily explained by the greater gallonage per day with one-third the miles traveled, and one driver's wage instead of two. The same basis of depreciation taxes, interest, insurance, etc., was used.

The third phase is merely a combination of the two already covered, except that the delivery at destination would not be as complicated. The four-wheel trailer would be dropped off at one station having capacity to take its entire load and the semi-trailer would then proceed to another station, picking up the four-wheeler on its return.

THE fewer trips per day would preclude the possibility of complicated routings where a few minutes' time would control the number of trips per day. As the specific

Method of Computing Hauling Costs

VARIABLE EXPENSES

Depreciation

Tractor Truck $3850 (average 4 major jobs)
Less trade-in 1200 after three years

$2650 net cost
Depreciation $880.00 per year—3 year basis.
Miles traveled per day—1½ trips—132 miles, for 300 days per year—39,600 miles
COST per mile traveled.....2.2c

Semi-trailer and tank $3100
Four-wheel and tank 2500

$5600 painted.
No trade-in after 10 years. Depreciation $560.00 per year. Miles traveled per year, 39,600.
COST per mile traveled.....1.5c

Tires

Tractor—15,000 miles per set, 2½ sets per year. 34 x 7 pneumatics, dual rear $490 per set.
2½ sets @ $490..... $1225.00
Trailer—14 inch on semi, 8 inch on 4-wheel figured at 40,000 miles per set..... 480.00

Per year $1705.00
COST—$1705.00 divided by 39,600 miles.....4.3c

Gasoline

39,600 miles at 6 miles per gal., 6600 gal. @ 15c per gallon $990.
COST per mile traveled.....2.5c

Oil

39,600 miles at 100 miles per gal., 396 gal. @ 60c—$237.60.
COST per mile traveled..... .6c

Mechanical Maintenance

$594 per year, exclusive of tires.
COST per mile..... 1.5c

TOTAL VARIABLE EXPENSE PER MILE....12.6c

FIXED EXPENSE

Taxes

Gross Investment: tractor $3850
Trailer tanks 5600

$9450
Tax rate (Ohio) 3.3 mills

$ 311.85
Total Tax $311.85

Interest on Average Invest.

Total investment.....$9450.00
75% of investment @ 6%..... $ 425.25

License

(Ohio rates)
Tractor truck.....$80.30
Semi-trailer..... 84.00
Four-wheel..... 76.00

$ 240.30

Garage

Per year..... 300.00

Insurance

Per year..... 400.00

TOTAL FIXED EXPENSE PER YEAR.... $1677.40

SUMMARY OF DAILY COSTS:

Variable expense, per mile 12.6c x 132 $16.63
Fixed expense per year, $1677.40 ÷ 300 5.59
Two drivers' wages..... 12.00

TOTAL DAILY COST..... $34.22

Cost per Gallon $34.22 ÷ 6450 = 5.3 mills per gallon.

ildraulic Revolving Lift

ECONOMICAL *in* MORE WAYS THAN *one*

Trade Mark

WAIT! The Standard Lift Co., Memphis, has just brought out three new designs, viz., 1. An Oil-driven Revolving Lift, with *motor and pump inside the ram,* and other advanced features. 2. An Air Revolving Lift. 3. A" Free-Wheel" Revolving Lift. Get the details on these revolutionary designs and the startlingly low prices on the particular type in which you are interested. Wait until you get this information, before buying any lift! Standard Lift Co., Memphis, Tenn.

Dept. NPN8 Standard Lift Co., Memphis, Tenn.

Send full description and prices covering

Oil-driven Lift.....(Check type
Free-Wheel Lift ..... interested
Air Lift..... in and
scratch
others)

If you operate more than one station, state number here.....

Name.....

Address .....

City..... .....State .....

New Reduced Prices.

In Millions of HOME GARAGES

there is a Place for MODEL "200" BARREL PUMP

The PUMP that PUT LEAKY FAUCETS OUT OF BUSINESS

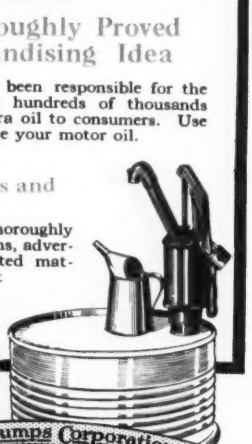
MODEL 200 is all-metal and so well built that it is capable of handling kerosene, gasoline, alcohol, etc., as well as motor oils. It fits 1½" to 2" drum openings and has adjustable sliding intake for draining 15 to 60 gallon capacity drums. Its handle is malleable and arranged for locking. Nozzle discharges a strong, unbroken stream and cuts off oil flow cleanly. Is transferable from drum to drum quickly. Replaces leaky faucets because of its exceedingly low price due to Bennett intensive specialization and large volume production.

A Thoroughly Proved Merchandising Idea

Model 200 has been responsible for the sale of literally hundreds of thousands of drums of extra oil to consumers. Use it to merchandise your motor oil.

Write for Sales Plans and Bulletins

We furnish thoroughly tested sales plans, advertising cuts, printed matter, etc. to assist you in merchandising oil thru use of Model 200.



Write Muskegon, Michigan, Bennett Export Corporation, 32 Broadway, New York City

Symbol of Quality

conditions to be met will vary slightly in each instance, no attempt will be made here to reduce this phase to a specific instance.

On several definite studies which were worked out in detail, for cities around 50,000 to 150,000 population, the additional cost for city delivery was close to 2 mills per gallon. This figure is not given with a view to its being adopted for any specific problem, and it should not be so used. However, it will assist us in drawing a conclusion from which further comparisons can be made.

We have a cost of 5.3 mills for our 44-mile haul to a bulk station. If we add 2 mills, we arrive at 7.3 mills for the complete haul from point A to filling stations 44 miles distant in point B.

Your own figures should be used in determining the cost of accomplishing this same result under the method now in use. In general, the tank car rate from refinery at point A to bulk plant at point B will average close to 1 cent per gallon. The cost of delivery from this bulk plant by truck tank will average 1 cent. This gives us a cost of 1¾ to 2 cents per gallon by one method and 7.3 mills per gallon by the other method, without touching upon further savings which might result from lower investment in bulk plant and hauling equipment at point B, which in every instance would be something, and in some cases would equal the total saving effected in transportation.

WHILE this discussion dwells chiefly on the subject of costs, even the briefest consideration of bulk hauling would not be complete without some mention of the other factors which must have careful consideration.

The first is, of course, safety. We are considering the placing of 4300 gallons of gasoline on the public highways and streets under existing traffic conditions. Such a load could easily constitute your greatest single potential liability were it not properly protected. Adequate means of protecting it have been developed by equipment manufacturers, and if fully utilized will result in a safer unit than a great many of the smaller jobs now in regular service.

It would seem advisable to hold the compartments within the maximum of 600 gallons recommended by the N.F.P.A. Emergency valves would, of course, be used in a 3-inch size where 3-inch piping is used, and these valves preferably would be unit controlled, to provide automatic stoppage of flow in event of fire while unloading. These, together with fusible plugs and fire screens in the filler caps, and a very substantial bumper bar, would provide against the normal hazards of collision and fire.

The second safety factor is brakes —plenty of brakes. The truck tractor brakes should never be relied upon to control the load. In addition to insufficient braking area, their location at the front of the load renders them proportionately less effective. In practice, it has been found that where adequate semi-trailer brakes are provided, drivers will rely upon them entirely with the exception of what may be termed traffic stops. Parking brakes are necessary on the four-wheel trailers, and may also be used for descending very steep grades.

THE third factor is to determine what size of trailer and tank can be used without its mere size offering definite disadvantages. These studies were based on a 2500-gallon semi-trailer and 1800-gallon four-wheel trailer, because in actual service they have proven highly practical. They have a satisfactory degree of maneuverability. The 2500-gallon unit can turn in a 38-foot street, can get in and out of filling stations, and the weight will not break down average driveways.

Its overall length is not great enough to seriously interfere with traffic, and its total size does not obstruct through traffic on the highways and thereby engender ill will on the part of the motoring public. Its gross weight permits the use of standard power plants without overtaxing their capacity.

In greatly exceeding this size, the selection of a power plant and its maintenance would justify careful thought. A reasonable speed can be maintained with this load, without excessive use of second or low gear on ordinary hills. There are other points not mentioned, but this will suggest some of the chief problems to be considered in connection with determining the size of your load.

The principles of bulk hauling are not new, but their application to the petroleum industry is sufficiently new to admit of few fixed conclusions. Experience so far assures us of the possibilities which exist and which will be more fully utilized as a knowledge of the subject spreads. A solution is being worked out for some of the limitations mentioned, and it is difficult to predict the extent to which this form of transportation may be profitably applied to the industry as a whole.

Distributing Study for One City Route

Stations From	To	Miles	Bulk loading time, minutes	Road time, minutes	Dumping time, minutes	Gallons delivered	Totals miles time
			22				
Bulk	No. 7	1.3	....	8	20	1000	.....
No. 7	No. 4	2.6	....	16	13	500	.....
No. 4	No. 9	1.9	....	9	21	1000	.....
No. 9	Bulk	3.1	....	20	....	.....	8.9 2 hrs. 9 min.

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Outpost Wells Making Heavy Gas Turn Attention to Lea County, N. M.

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, June 23

ALMOST invariably oil fields in the Permian age salt basin of west Texas and southeastern New Mexico have been marked by small discovery wells.

Operators have learned, therefore, not to discount the importance of outpost completion as regards future development, whatever the caliber of the original oil showings.

The latest small well discovery of the salt basin region is Midwest Exploration Co.'s No. 1 state land, sec. 8-19S-38E, Lea county, New Mexico, about 4 miles northwest of the inland postoffice at Nadine.

After the test had been drilled to total depth of 4066 feet oil rose in the hole about 2500 feet. The test had topped lime formation at 3706 feet, or 68 feet below sea level. A nine-barrel oil show was reported at 4049-4050 feet.

Gas blew tools up in the hole at 2880 feet and a bare showing of oil was found at 3010 feet.

The Midwest test is about five miles west of the Gaines county, Texas, boundary and about 40 miles north of outpost development in Winkler county, Texas. The only other test in the immediate area of the Midwest well to make a showing has been that of Cecil Bordages and others, sec. 27-19S-38E, on the Jennie Hughes ranch, which at 3110 feet made about 10,000,000 cubic feet of gas daily last March.

Southeast of the Midwest well upwards of 20 miles, in sec. 12, block A-46, Andrews county, Texas, the Deep Rock Oil Co.'s No. 1 Harris ranch test is getting ready to resume drilling at 3340 feet. Surface elevation of the Harris test is 3167 feet above sea level and bottom of the hole is now 173 feet below that datum.

Some sweet gas is still coming from a pay horizon drilled through at 2940 feet, which had estimated volume of 3,000,000 cubic feet but which gaged 600,000 cubic feet when recently tested.

Upwards of 30 miles southwest of the Midwest well the currently most interesting operation in southeastern Lea county is the No. 1 Sholes joint test of the Marland Production Co. and the California Co., subsidiary of Standard Oil Co. of California.

The Sholes, in sec. 19-25S-37E, found 10,000,000 cubic feet daily of sulfur gas at 2748 feet. Tools were blown up in the hole and the 8-inch nipple broken. This is the second gas show in the Sholes. It had previously found sweet gas in smaller volume at 2627 feet.

Lime formation was topped in the Sholes at 2550 feet, surface elevation 3110 feet, making the Marland-California test by far the highest on the sub-surface structure of any yet drilled in the Lea county area.

The Sholes well is about six miles north of the Eaves test of the Marland-California partnership, which will drill ahead from its recent shutdown level of 2968 feet. At the depth mentioned the Eaves had suspended drilling operations to mud-off a gas flow of roundly 91,000,000 cubic feet daily.

Until the Sholes found the lime at the aforementioned high level the Eaves had been structurally the most promising well in Lea county.

The Eaves and Sholes tests are in the north-northwest trend of the subsurface lime ridge which extends from Hendricks field development, in central western Winkler county, Texas, past the Leck well area south of the New Mexico boundary.

The Leck well, drilled by Gibson & Johnson, Kesslar & Logan, in sec. 3, block 74, nine miles north of Hendricks development, is also about four and a half miles south of the Eaves test, the last mentioned on the New Mexico side of the state boundary.

At its best the Leck well made at the rate of 9200 barrels daily, but almost immediate intrusion of water and b.s. resulted from its being drilled too deep in the lime. The Leck well was allotted 1194 barrels daily under the Winkler county prorating yardstick after testing 4344 barrels of oil in one day.

The Railroad Commission of Texas, which ordered Winkler county proration under its conservation powers, still had under advisement at the time this was written the question of whether present regulations shall continue throughout Winkler county or whether separate treatment shall be accorded the Leck well area.

Winkler operators failed to agree at a Fort Worth hearing before the commission, May 31, as to whether separate rules should be applied in the two areas. Effort was made at that time to have the North Winkler area drilled on a 1-well to 40 acres basis as compared with the 1-well to 10 acres basis in the Hendricks development; also it was proposed to change the prorating yardstick for the Leck area so that acreage factors would be on a basis of 160-acre units and average potential, instead of total potential, would apply in the production considerations.

Hendricks units consist of 40-acre tracts and total potential figures in the production consideration for prorating purposes.

Similarly, the railroad commission had failed to act at the time this was written on the appeal to it for an order covering the new Yates field, Pecos county, prorating agreement. There, operators had decided to prorate 75 per cent on the basis of average potential production and 25 per cent on 100-acre units, as previously reported.[1]

Only two companies appeared in opposition at a formal hearing conducted by the railroad commission at Austin June 11 when the appeal for a prorating order was discussed.

One protestant, Transcontinental Oil Co., stated through its representative that it had agreed to join in the new prorating plan but was unwilling to join in application for the railroad commission to assume jurisdiction.

Unlike the Winkler county area, where prorating of production came about through order of the commission, the Yates field has been in the past handled by the operators themselves.

The only other opponent to the Yates field plan was the Oil Operators Trust Co., which owns edge property in the Pecos river bed, which did not want its production of crude restricted.

[1]—NATIONAL PETROLEUM NEWS, page 31, June 6, 1927.

Safety Films Go on Road In Mid-Continent

TULSA, June 22.—The safety division of the Mid-Continent Oil & Gas Association will begin its motion picture campaign of education in safe working practices June 18, according to Don J. Wallace, director. This year the division has prepared six complete motion picture programs which will be sent throughout the Mid-Continent.

The first series of shows will be completed by Aug. 17. Then a new set of reels will have been produced by the safety division. During the three months that the first shows are on the road the pictures will be shown at 108 points to thousands of field workers and foremen.

90% CORE RECOVERY WITH A HUGHES CORE BIT

The picture below is that of cores taken with a Hughes Roller Core Bit on Well No. 1, V. T. Bolin-Brown, a wild-cat located 4 miles east of the famous Winkler Pool.

More than 360 ft. of uncontaminated core was successfully taken between 2515 ft. and 2915 ft. depth. With the exception of 16 ft. the formations were anhydrite, broken lime and hard lime. Only 12 cutter heads were used.

The Hughes Roller Core Bit is designed for maximum drilling speed, safety and the recovery of uncontaminated cores. The cutters roll in a true circle with relation to the center of core.

The men shown in the photograph, reading from left to right, are B. F. Walker, V. T. Bolin, J. E. McAney and Ed Henson.

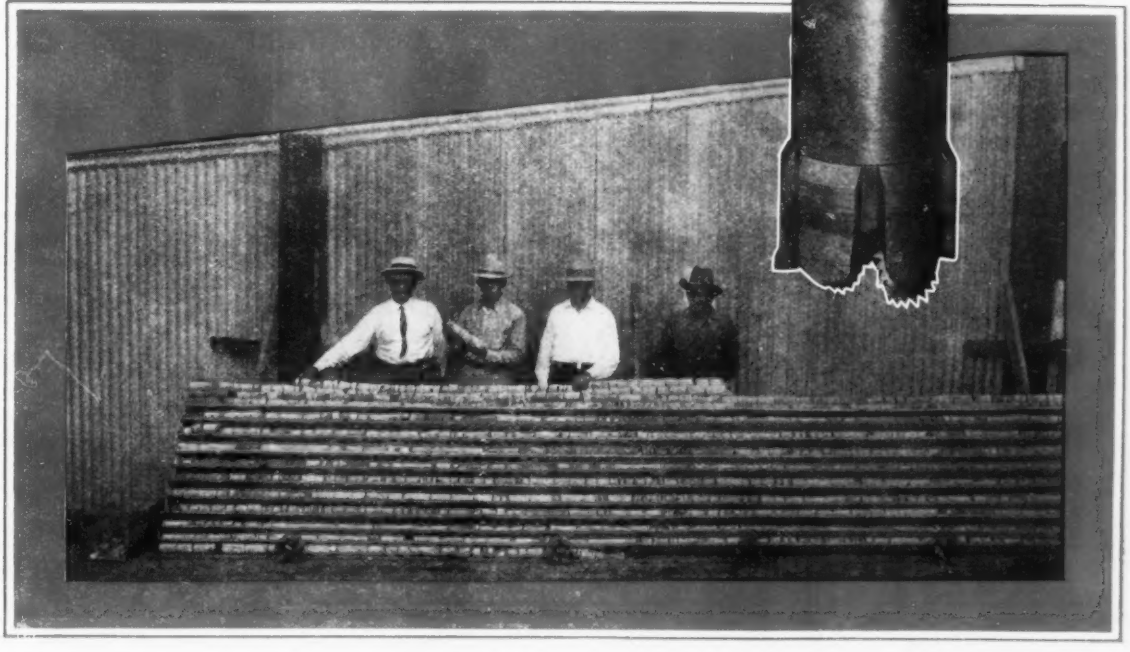
(By Walker)

Hughes Tool Company

Service Plants
Los Angeles, Cal.
Oklahoma City, Okla.

Main Office and Plant
Houston, Texas

Export Office
Woolworth Building
New York City



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The need for close estimates as to future yields of oil and gas properties; future operating costs; price trends; value of underground reserves, etc.—is generally recognized.

Both Dr. Johnson, who is Professor of Oil and Gas Production, Univ. of Pittsburgh, and Paul Ruedmann, Appraisal Engineer and Geologist, Tulsa—have had a great deal of experience in this work. They have gone into the subject of "Appraisal of Oil and Gas Properties" in more detail than has ever before been attempted, with charts, drawings and procedure in valuation work outlined fully.

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Ford Engine Powers Core Drill

LOS ANGELES, June 22.—A portable prospecting diamond core drill powered with an ordinary Ford automobile engine, perfected by Fred Stone of the Doheny-Stone Drill Co. of Los Angeles, is being offered the oil industry for prospecting or for drilling in extremely shallow oil fields.

The machine as shown in the illustration, including engine, two pumps and wire line, weighs 1600 pounds. It will be noted that the gas tank is placed directly above the Ford engine.

The assembly is sturdy and compact. High grade alloy steels are used. This includes all gears and shafting. The castings are all heat treated electric steel, said to have a strength of more than four times their weight in cast iron. Most of the bearings are Timken roller with the gears running in a bath of oil.

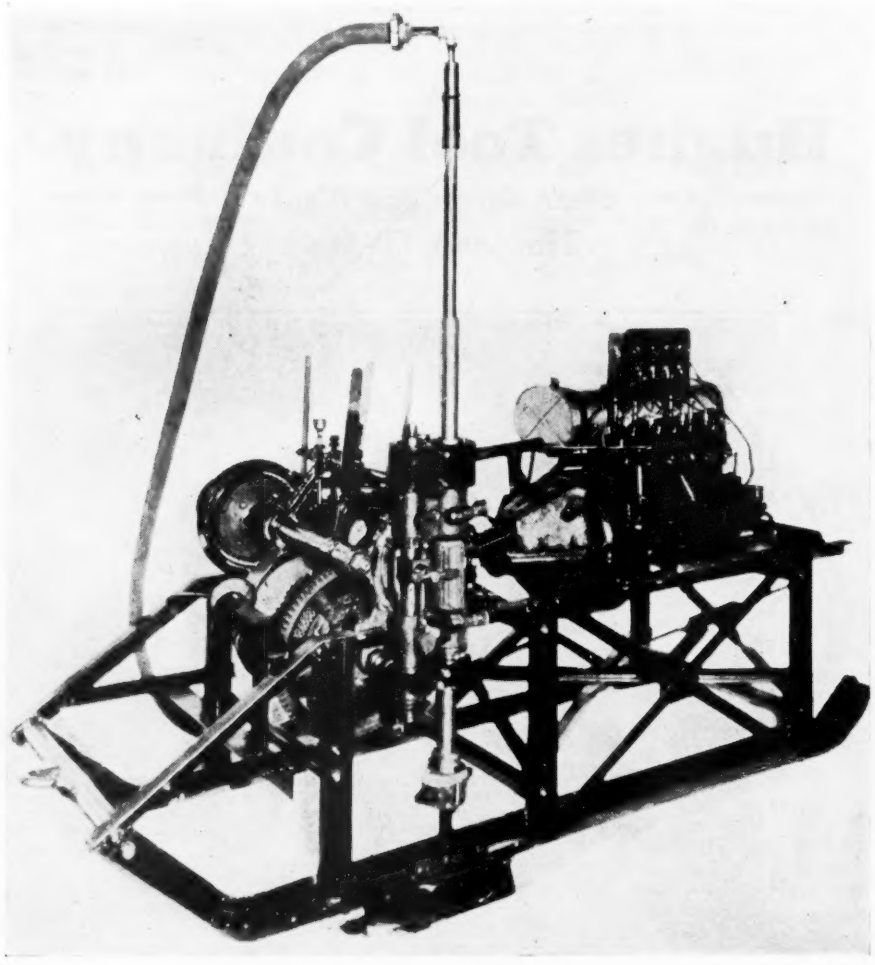
The Ford engine was selected to power the assembly for several reasons. Prospective holes usually are drilled in remote areas where fuel and repair parts are not easily secured. The engine uses gasoline which can be bought in drums and repair parts for an engine of this kind are obtainable in almost every country garage.

The planetary transmission makes an efficient means of changing from low to high gear. The extra sliding gear transmission makes it possible to maintain the proper drilling and hoisting speeds.

Two steel pumps are driven with gears from the main drill shaft. They can be run separately or together and have two independent speed changes to give proper pump speed to work with varying drill speeds.

Special levers are used for shifting these gears. The photograph shows a screw feed mechanism which can be swiveled to point in any direction and is hinged so it will swing away from the machine. It can be replaced by a hydraulic feed. The screw feed has three sets of gears so that any desired feed can be had with relation to the r.p.m. of the drill rods.

With this compact machine, it is possible to drill a 6-inch hole, using hydraulic feed, to 700 feet. A 2-inch hole can be drilled to 1000 feet.



Portable drilling machine driven by a Ford engine

Read Between the Lines - Find Dollars Saved

Report on Well No. 1 Sec. 24-20-14 in Coalinga Field
Well brought in in year 1904.
$ $ $ $ $ $
Well cased entirely with Reading Genuine Wrought Iron Casing.
$ $ $ $ $ $
Water string is 10" 35 No. 8 thd. Reading Casing.
$ $ $ $ $ $
No water trouble has ever been experienced in this well, and it is a good producer today.
$ $ $ $ $ $
Term of successful service of casing to date, 17 years.
$ $ $ $ $ $

IT is the same old story over again but surely worth repeating like any good example. Reports of other wells using other casing material in the very same territory are not nearly so cheerful; in fact they are the best advertisement for the use of Reading Genuine Wrought Iron Pipe.

Reading Casing and Tubing have an enviable record for withstanding corrosion even in fields where sulphur water prevails. Reading pipe, because of its dense structure, is insurance against leaky joints, splits, galled threads and crystallization. It is the only pipe made by the double welded process — consequently, the strongest in existence.

Note the Spiral Knurl Mark stamped on every foot of Reading Genuine Wrought Iron Pipe.

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GENUINE WROUGHT IRON

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They like its Speedy Service--no waiting at the pump.

They like its Visible Measure--see and get all they pay for.

They like its Filtered Gasoline--more miles--less trouble.

They like its Brilliant Flood-lighting--like daylight at night.

A Trade Booster—

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MECHANICAL METER 100% ACCURATE

The continuous recording meter registers all discharges up to 1,000,000 gallons and repeats--enabling an accurate account to be kept of all sales.

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The Selection of Power Equipment For Oil Well Pumping Service

By Lester C. Uren

Professor of Petroleum Engineering, University of California

Article 5—Additional Types of Internal Combustion Engines

THE previous article of this series, reviewing factors of importance in the selection of power equipment for oil well pumping service,[1] was concerned particularly with single-acting, single-cylinder, horizontal gas engines: a type of internal combustion engine that has been used more than any other in the operation of oil wells.

In the present article, two other types of internal combustion engines appropriate for this purpose, but less widely used, will be described; namely, the vertical multi-cylinder gas engine and the "oil engine," or "semi-Diesel" type of engine, using liquid fuel.

Vertical Multi-Cylinder Gas Engines

Within recent years, a portable type of engine having four or six vertical cylinders, has been introduced into the oil fields and has found many and varied uses—among others, the pumping of wells.

These engines are patterned somewhat after the well known type of automotive engine. Such an engine is customarily mounted on a rigid, structural steel frame, and is housed in a steel hood, one end of which supports an automobile type of radiator. The entire unit, in the sizes appropriate for oil-well pumping service, will ordinarily range in weight from 900 to 3000 pounds.

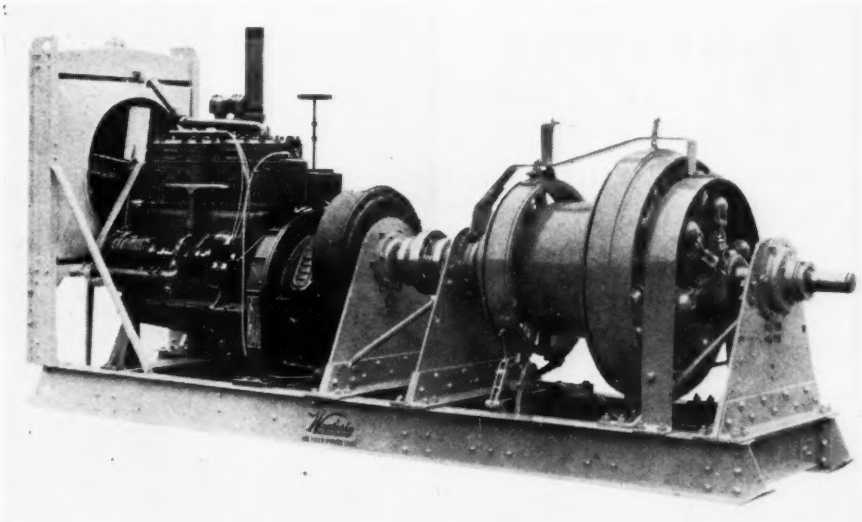
Like the automotive type of engine, these power units have comparatively small cylinders and a short piston stroke, and must therefore operate at high speed. Crank-shaft rotational speeds range from 800 to 1500 r.p.m. They may be had in units ranging from 25 to 150-h.p., but the smaller sizes ranging up to 60-h.p., are the most appropriate for oil well pumping service. They may utilize either natural gas or gasoline as fuel, but the former is generally less expensive if available.

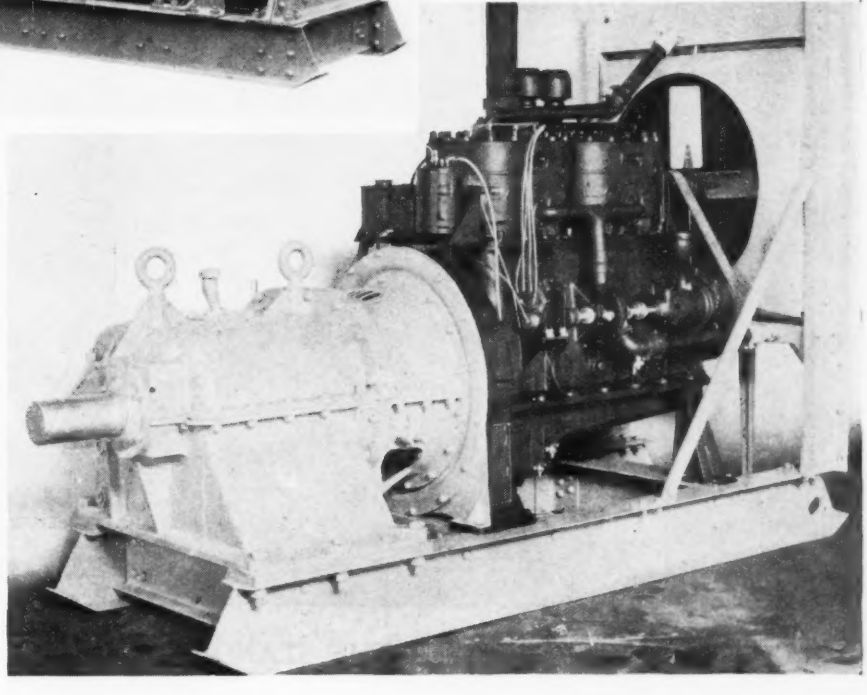
Such engines are highly flexible in their speed and power output and adapt themselves readily either to the constant requirements of well pumping service, or to the variable speed and torque requirements of well pulling and cleaning or swabbing.

For slow speed pumping service however, they must necessarily be equipped with a reducing gear mechanism. Certain types of pumping units—such as the Lufkin unit—that were described in an earlier article of this series,[2] are equipped with this type of engine by the manufacturers.

Perhaps the chief advantage of power units of this type, is their portability, it being possible to load them quickly on a motor truck and move them about; and as soon as they are placed on the derrick sills or floor and fuel connections are provided, they are ready to run. Being equipped with their own steel housing in the form of a removable hood, they require no engine house.

In addition, they are adaptable to





Below, Fig. 1—Waukesha four-cylinder engine equipped with speed reduction gear. At the left Fig. 2—Waukesha four-cylinder engine equipped with reduction gear and reversing clutch. Both photographs courtesy of Waukesha Motor Co.

1. See NATIONAL PETROLEUM NEWS, issues of May 23, and June 6, 1928.

2. See NATIONAL PETROLEUM NEWS, issue of March 21, 1928.

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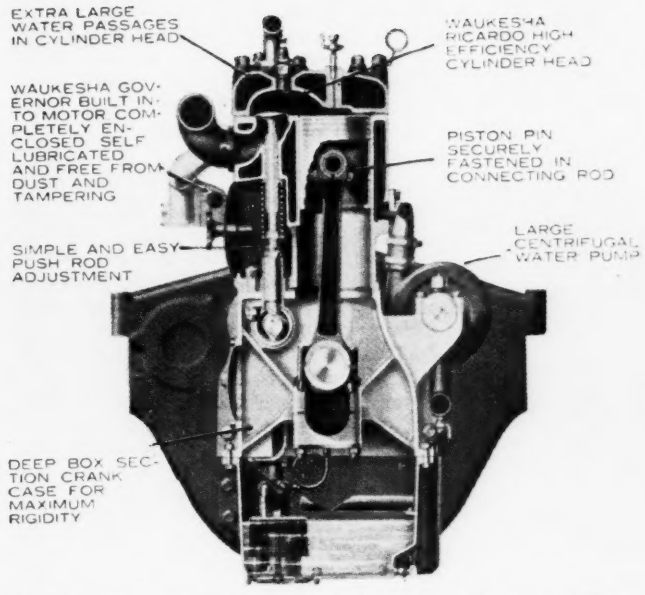
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WAUKESHA RICARDO HIGH EFFICIENCY CYLINDER HEAD
WAUKESHA GOVERNOR BUILT INTO MOTOR COMPLETELY ENCLOSED SELF LUBRICATED AND FREE FROM DUST AND TAMPERING
PISTON PIN SECURELY FASTENED IN CONNECTING ROD
LARGE CENTRIFUGAL WATER PUMP
SIMPLE AND EASY PUSH ROD ADJUSTMENT
DEEP BOX SECTION CRANK CASE FOR MAXIMUM RIGIDITY

Fig. 3—Cross sectional view of Waukesha engine. (Courtesy of Waukesha Motor Co.)

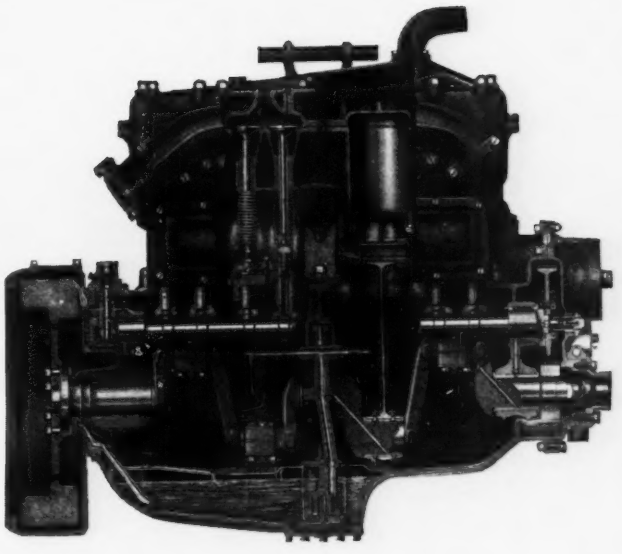

Fig. 4—Cross sectional view of Buda engine. (Courtesy of the Buda Co.)

many other lease requirements, such as drilling, operating compressors, lease transfer pumps, dynamos for lighting and other purposes; or generally, wherever power may be required in units of small or moderate size.

While multi-cylinder engines are less economical from the fuel consumption standpoint, than single-cylinder engines of equal power, they deliver a more uniform power torque. For this reason, no heavy fly wheels are necessary. Multi-cylinder engines have the further disadvantage, in comparison with the common type of single-cylinder, horizontal gas engine, that they comprise a greater number of parts and are generally made up of lighter parts that are necessarily less ruggedly built and assembled, so that maintenance costs are correspondingly greater.

The higher speed of rotation of this type of engine is also a disadvantage which means generally a shorter useful life. These limitations, however, need not necessarily prevent such engines from giving thoroughly satisfactory performance over long periods of time in oil well pumping practice, if properly designed and built for this class of service. Instances are known where a certain make of engine of this type has been in continuous service for eight years.

Among the several makes of engines of the vertical, multi-cylinder type that have found use in oil well pumping service, two will be mentioned that are perhaps, better known than any others. These are the Waukesha, Buda, and Climax power units.

The Waukesha Motor Co.'s oil field power unit has been especially adapted and is built in sizes appropriate for oil well pumping service, including pulling of rods and tubing, cleaning out and swabbing. The Waukesha unit is available in 10 different sizes, ranging from 25 to 125-h.p., the 40, 50 and 60-h.p. sizes being most economical for ordinary well pumping service.

All Waukesha engines are four-cylinder engines and are equipped with the Ricardo type of cylinder head, a patented feature which, it is claimed, gives higher than normal combustion efficiency. These units are especially designed for quick installation and require little else in the nature of supports than the channel-steel frame on which they are rigidly and permanently mounted. The 40, 50 and 60-h.p. sizes range from 2,800 to 2,920 pounds in weight, including the necessary reduction gearing.

A power takeoff on the engine end of the unit, permits of the same engine serving two purposes of different speed requirements, simultaneously if desired.

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Figs. 1 and 2 illustrate two typical Waukesha units equipped for this class of service. In Fig. 1, the unit is provided with a 4 to 1 reduction gear, giving the driveshaft a governed speed of about 250 r.p.m. with an engine speed of about 1,000.

Fig. 2 illustrates a Waukesha unit especially equipped for cable-drilling service, with a 3.7 to 1 reduction gear and reversing drum. Such a unit of smaller power, would also be applicable in well pumping and in pulling and cleaning service, in conjunction with the ordinary band-wheel, crank, pitman and walking-beam assembly.

Among well-known manufacturers of oil field equipment who make use of the Waukesha engine for power development purposes, are the Lufkin Machine & Foundry Co. in its reduction gear pumping units, the Rock Island Plow Co. in its well-pulling units, and the Star, Keystone and Longyear drilling machine companies in their drilling and well-conditioning cable-tool equipment.

The Buda company's oil field power units may also be had in a variety of sizes and types. A number of different sizes appropriate for well operation are available in four-cylinder types, ranging from 25 to 80 h.p., while another group of six-cylinder engines in various sizes, will deliver up to 150 h.p. Three sizes, ranging from 50 to 85 h.p., are capable of pumping and pulling rods and tubing from wells of from 2,000 to 4,000 feet in depth.

The Buda engine is regularly equipped with a heavy duty clutch, an extra large radiator, high tension magneto, forced feed lubrication, special type of governor with telegraph cord control, oil filter and air-cleaning devices, and is designed for use with either natural gas or gasoline. With the latter fuel, the engine delivers about 15 per cent more power than with natural gas, but natural

Fig. 5—To the left—Buda engine used in oil well pumping service in conjunction with a Lufkin pumping unit.

(Courtesy of the Buda Co.)

Fig. 6—Below—Side elevation of Climax engine direct connected to gear reduction well-pumping unit. (Courtesy Climax Engineering Co.)

gas fuel is generally the more economical on the oil lease. The engine is especially designed for use in connection with geared pumping units of the type previously referred to.

Fig. 3 presents a cross-sectional view of the Buda engine, showing the principal working parts, while Fig. 4 illustrates its use at a pumping well in conjunction with a Lufkin unit.

The Climax oil well pumping power-unit, especially adapted to the pumping of wells and incidental pulling and cleaning operations, in conjunction with a suitable reducing-gear mechanism, is illustrated in Fig. 6.

The photograph reproduced in Fig. 7 illustrates a typical field installation. This power unit is available in three sizes of 65, 80 and 120 h.p., the two former being equipped with four-cylinder engines and the latter with six. The 65-h.p. engine will take care of the normal power requirements of the average well and though rated at 65, will develop a maximum of 75 h.p. The 80-h.p. unit will deliver 95 h.p., and the 120-h.p. size will deliver as much as 140 h.p. Weights, including steel skids, are 2,950, 3,600 and 4,750 pounds, respectively for the three sizes.

The Climax unit is equipped with a Climax engine with built in governor, water-cooling pump, cooling fan, magneto, spark plugs and wires, fly-wheel, combination gas mixing-valve and carburetor for use with either natural gas or gasoline as fuel, all mounted on a steel frame with hood, side and rear panels, radiator, telegraph cord control, muffler, air-cleaner, spark and carburetor controls, enclosed twin-disc clutch and fuel tank. The larger size is also equipped with an electric starter and storage battery.

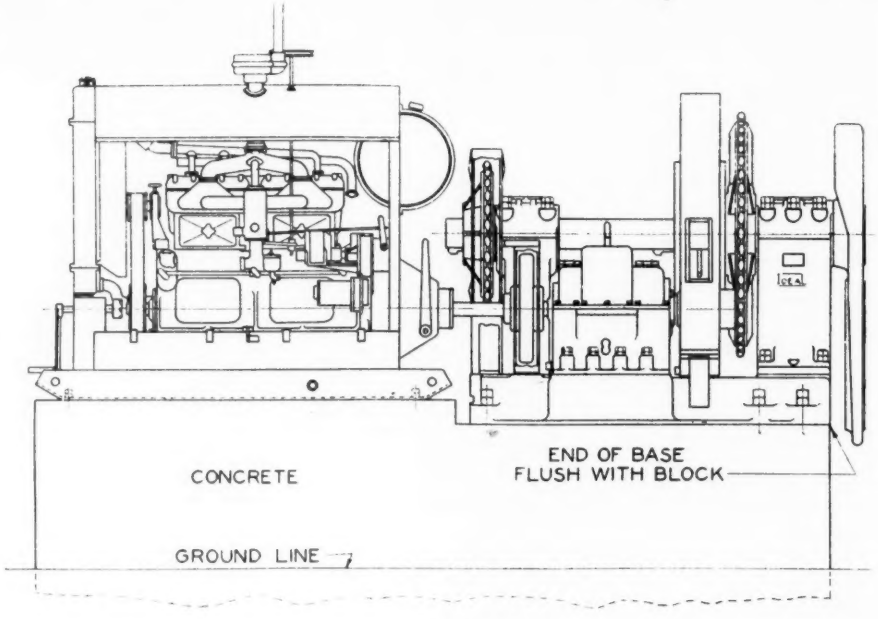

Fig. 7—Climax engine used in operating an oil well in conjunction with a gear unit and hoisting drum. (Courtesy of Climax Engineering Co.)

Oil Engines

A single horizontal cylinder type of internal combustion engine utilizing liquid hydrocarbon fuel, is also employed to a limited extent in oil well pumping service, but is not so widely used as the single-cylinder gas engine described in the previous article of this series.

The oil engine is particularly useful in oil field service where natural gas production has declined to such a point that it is no longer available in sufficient quantity for power development purposes, or where it is more valuable for other purposes.

Oil engines operate on low grade petroleum distillates, or even on crude petroleum as produced from the well providing its volatility is not too low, and providing impurities, such as water, sand and sulfur are not present to a detrimental degree.

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Fire	500	Fire	510
Viscosity	250 @ 100	Viscosity	350 @ 100
Cold Test	15/20	Cold Test	15/20
HEAVY		**SUPER-BRIGHT**	
Gravity	29	Gravity	27.5
Flash	465	Flash	560
Fire	530	Fire	630
Viscosity	70-75 @ 210	Viscosity	140 @ 210
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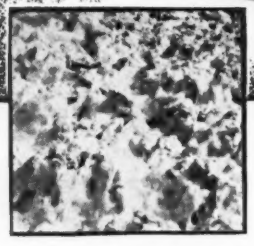

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two have many features in common. It is therefore sometimes referred to as the "Semi-Diesel" engine.

The two types are fundamentally different however, in that the Diesel engine is a "constant pressure" engine—i.e., the fuel is injected as a liquid into the cylinder, which is filled with air compressed to a pressure which develops heat sufficient to cause ignition, and burns comparatively slowly during a considerable change in cylinder volume.

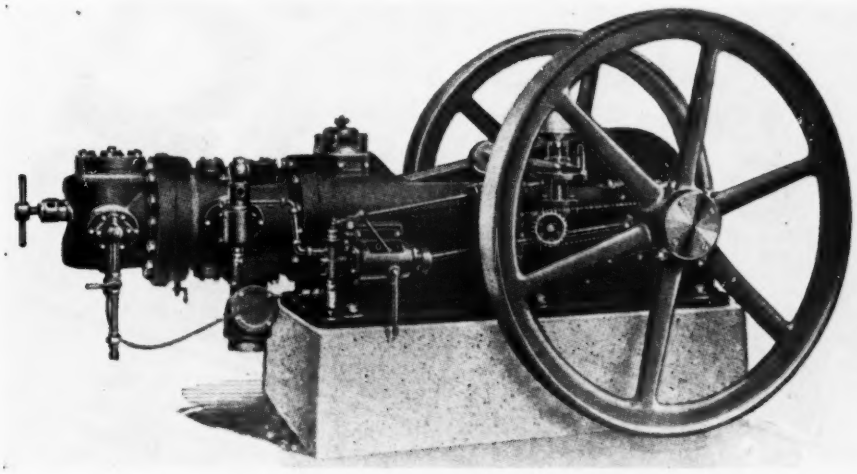

Fig. 8—Typical oil engine of style appropriate for oil well pumping service. (Courtesy of Bessemer Gas Engine Co.)

In the oil engine, on the other hand, the liquid fuel must be converted into vapor and mixed with air and burned in a separate chamber communicating with the power cylinder. Combustion of the fuel in this case, occurs with almost explosive rapidity, under a somewhat lower compression pressure, so that the piston is actuated by a constant mass of gas which undergoes rapid expansion and loss of pressure as the cylinder volume increases.

Oil engines are available in both two and four-cycle types, in which the sequence of events comprising the cycle of operation, is very similar to that which characterizes the two and four-cycle gas engines previously described.[1] For oil field pumping operations and general well service, however, the two-cycle type is almost exclusively used. The oil engine is noted for its high fuel economy, and is in most models, capable of developing a horse-power hour at full load on less than 0.75 pound of fuel. At reduced loads, the fuel consumption is generally increased somewhat, being about 11 per cent higher at three-fourths load, and 27 per cent higher at half-load.

In the two-cycle oil engine, the crank end of the power piston and cylinder are used to compress air, the crankcase being enclosed in a metal housing capable of sustaining a pressure of 10 pounds per square inch or more. (See Fig. 90.)

Assuming that the power stroke of the piston is just nearing completion, the crankcase is filled with compressed air under a pressure of, say, 5 pounds per square inch. The air inlet valve which admits air to the crankcase, is closed by the pressure thus created. Near the end of the power stroke, an exhaust port in the cylinder wall is uncovered by the travel of the piston, permitting the gases created by burning of the fuel charge, to escape into the atmosphere.

Another port, also uncovered by the piston just before the end of its power stroke, permits low pressure compressed air to flow from the crankcase into the power end of the cylinder or the space between the piston and cylinder head. Flow of this compressed air into the power end of the cylinder aids in scavenging the remnants of burned gases resulting from the previous charge, leaving the cylinder filled with pure air.

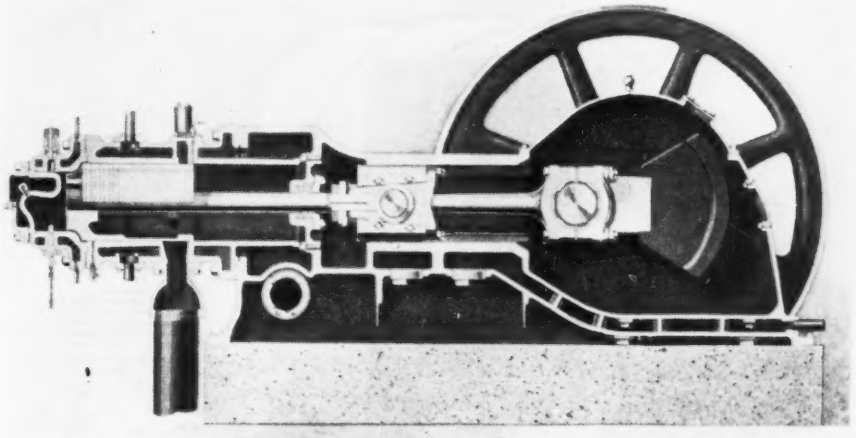

Fig. 9—Sectional view of typical two-cycle oil engine. (Courtesy of Bessemer Gas Engine Co.)

As the piston returns on its compression stroke, the exhaust and communicating air ports are closed and the air thus trapped between the piston and cylinder head, is compressed to a pressure of from 145 to 220 pounds per square inch. Meanwhile the residual air left in the crankcase is reduced below atmospheric pressure as the returning piston permits its volume to increase, thus opening the air inlet valve so that a new supply of air may enter.[2]

The oil engine must be equipped with an auxiliary oil pump, generally actuated by an eccentric or cam attached to the crankshaft. This pump is so designed that a definite amount of oil is admitted to its cylinder from the supply piping with each stroke, and then forced under pressure into a heated chamber communicating with the combustion end of the cylinder.

This combustion chamber is maintained at a dull red temperature by heat generated by the burning fuel, but must be heated by supplemental methods in starting the engine from cold—generally with the aid of a gasoline blow-torch. The fuel charge is sprayed into this heated chamber just at the conclusion of the compression stroke of the piston, mixes with the highly compressed air, and burns with almost explosive rapidity. Rapid increase in pressure due to sudden formation of gases resulting from burning of the fuel charge within the combustion chamber and the space between the cylinder head and piston communicating therewith, drives the piston forward on its power stroke. The maximum pressure within the cylinder developed by the burning fuel ranges from 270 to 470 pounds per square inch.

A centrifugal type of governor, driven by belt or gearing from the crankshaft, controls the speed of the engine by regulating the length of stroke of the fuel pump, hence directly influencing the quantity of fuel admitted to the combustion chamber. The ignition chamber is often spherical or cylindrical in form; hence the name "hot ball" or "hot tube" ignition. Often a small metallic projection on the inner surface of the

[2] For a thorough discussion of the cycles of operation of the several types of Diesel and oil engines, the reader is referred to U. S. Bureau of Mines Bull. 156, entitled, "The Diesel Engine, its Fuels and Uses," by Herbert Haas. Additional data on the application of these engines to oil field purpose, will be found in U. S. Bureau of Mines Bull. 224, entitled "Surface Machinery and Methods for Oil Well Pumping," by H. C. George.

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combustion chamber is provided. This being of thinner construction, is heated to a higher temperature than the thicker walls of the chamber and remains incandescent as long as the engine is in operation.

The burning fuel develops a temperature in the combustion chamber of from 2,300 to 3,150 degrees F.; hence the cylinder walls and heads must be water-jacketed. In starting the engine after a period of idleness, it is necessary to precompress the air admitted to the cylinder, and for this purpose it is customary to provide a small auxiliary air compressor and receiver. The compressor is often driven by a separate small kerosene, gasoline or gas engine.

While heavy crude oils can sometimes be effectively used as fuel for engines of the type we are here considering, best results are secured from a relatively light and volatile oil or distillate, which must contain not more than a small amount of impurity. The Bessemer Gas Engine Co. recommends the following specifications for oil-engine fuel:

Flash point, open-cup test, below 275°F.
A. P. I. gravity, not below 26°.
Sulfur content, less than one-half of one per cent.
Water content, less than one-half of one per cent.
Carbon residue (Conradson), not over 3 per cent.
At least 60 per cent distilling below 360°C.
Suspended solids, none.

There is said to be little or no difference in fuel value for this purpose, between asphaltic and paraffin base oils. It is best that the fuel injected into the combustion chamber should not impinge directly against the heated walls, for if this is done it tends to accumulate a deposit of coke. In some engines, a little water is injected into the combustion chamber with the fuel to assist in vaporizing the latter by the partial pressure of the steam thus formed.

Figs. 8 and 9 will serve to illustrate a type of two-cycle oil engine that is becoming increasingly popular in oil field pumping service. This type of engine may be had in several sizes ranging from 12 to 85 h.p., but the 40-h.p. size is an appropriate one for most oil well production purposes.

Inspection of the illustrations will show that this type of engine is patterned closely after the general description given in the foregoing paragraphs. In this particular engine, however, a somewhat novel form of combustion chamber is used in lieu of the customary "hot ball" oil vaporizer and igniter (See Fig. 9). The fuel is injected by the fuel pump mounted on the side of the engine, in a finely atomized condition through the bottom of the chamber, and in an upward direction. It mixes with air in passing up through the combustion chamber and is ignited on contact with the "hot bonnet" forming the top of the chamber.

The speed of the engine is regulated by a governor of inertia type, driven from the crankshaft, which

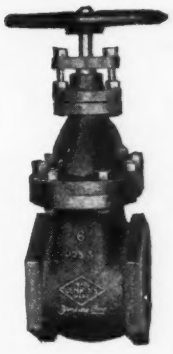

Fig. 325
Screwed, Jenkins Standard Iron Body Gate Valve

Fig. 775
Flanged, Jenkins Medium Pressure Iron Body Globe Valve.

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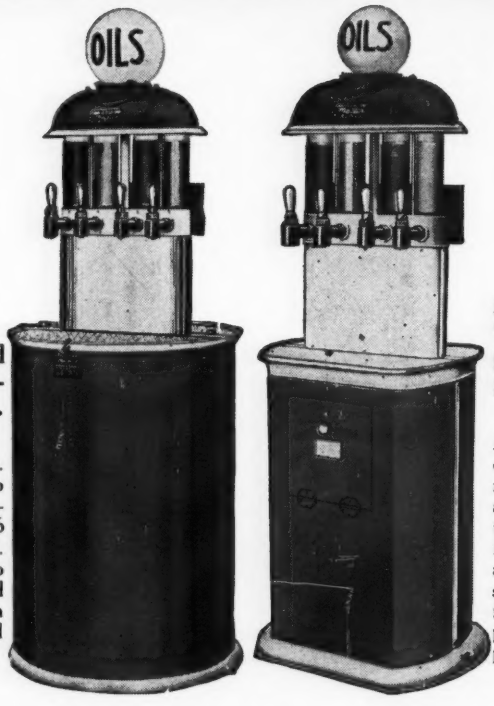

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functions by altering the stroke of the fuel pump. A forced-feed lubricator with positive sight-feed, also operated from the crankshaft, is used. The amount of lubricant automatically fed to the various working parts is adjustable within wide limits. Two heavy flywheels are provided to equalize the power torque.

The fuel economy of such an engine will vary with the load, but is said to remain practically constant from full-load to three-fourths load.

Oil consumption is about two-thirds of a pound, or seven-tenths of a pint per horsepower-hour.

When the load is direct connected to the engine, as in pumping service, some type of clutch must be provided to permit the engine to gain momentum before taking up its load. This may be mounted on a belt-driven countershaft, or it may be attached to an extension on the crankshaft, operating a friction-driven pulley which carries the belt to the bandwheel.

Many oil producers have refused to seriously consider the use of oil engines for well pumping purposes, in the belief that they are complex, difficult to start and comparatively inflexible as to speed and power output. Some years ago this may have been true, but progress in the development of this type of engine within recent years has produced an engine that leaves little to be desired from an operating standpoint.

They are now beginning to find use in rotary drilling service, a much more difficult application than we are here considering, and there is apparently no good reason why the oil producer should not adopt the oil engine for operating his wells, with the expectation that it will perform as satisfactorily as the one-cylinder gas engine with which he has become familiar through long use. From the standpoint of economy, if fuel has to be purchased, there is no other type of engine that will produce power so cheaply.

Conclusion

The present article completes a series of five dealing with the selection of power equipment for oil field pumping service. Only electric power and the various types of internal combustion engines have been considered in this analysis. Though steam power has, in the past, been widely used in operating oil wells—exclusively until the development of the gas engine—the writer believes that its period of usefulness in this application has passed. At any rate, the modern oil producer, with electric power, gas engines and oil engines available for his needs, would only under very abnormal circumstances find it economical to use steam power for his well operation requirements. For this reason, the steam engine has not been included in the present series of articles.

The choice as between one or an-

other of the several types of power units must depend upon the particular conditions presented in each locality. While convenience, reliability and adaptability will be important considerations in determining which shall be selected, the question is primarily one of economics, and the type of power giving greatest economy in continued use, will generally be the one to install.

Where electric power may be cheaply purchased from outside sources, it will, in general, be found the most satisfactory type of power for well operation purposes. Where electric power is not available, or is not to be had at a reasonable price, the gas engine will in most cases, be the most economical, particularly if the fuel required may be had without cost, as is practically the case in many fields where there is a surplus of gas.

Where gas is not available in sufficient quantity, or is more valuable for other purposes, the oil engine may be used with economy and equal satisfaction, and often the crude petroleum produced from the wells can be used for fuel.

There are other ramifications of the power problem as, for example, the possible development of electric power by the producer, in central power plants using gas engines, oil engines or steam turbines in large units as prime movers. All of these possibilities must be considered by the oil producer in determining which type of power he should adopt.

In many cases, as in previously equipped properties, where a change from one type of power to another is under consideration, the problem becomes even more complex in that the residual value of the existing plant must also be taken in the use of a less efficient type of power than to sacrifice the value represented in the present equipment, in scrapping it for new and more efficient power units.

LOUISVILLE, Ky., June 22.—Purchase of the bulk station of the States Oil Co., at Elizabethtown, Ky., by the Stoll Oil Refining Co. recently, completes the latter company's chain of stations in Kentucky to the Tennessee border. Additional storage facilities will be installed at the newly acquired plant, according to William A. Stoll, secretary and treasurer. The Stoll company also has bulk and service stations in Indiana and Ohio. Its headquarters are at Louisville.

CLEVELAND, June 22.—Action on recommended good practice for the construction and operation of gasoline tank trucks tentatively adopted by the committee on flammable liquids of the National Fire Protection Association in 1927, was deferred at the recent 1928 meeting. An effort will be made to get an agreement on certain parts of the code.

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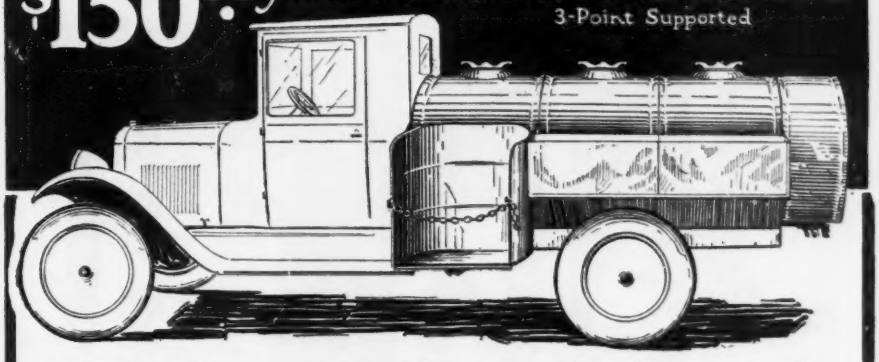

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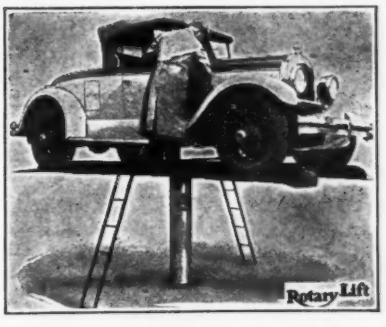

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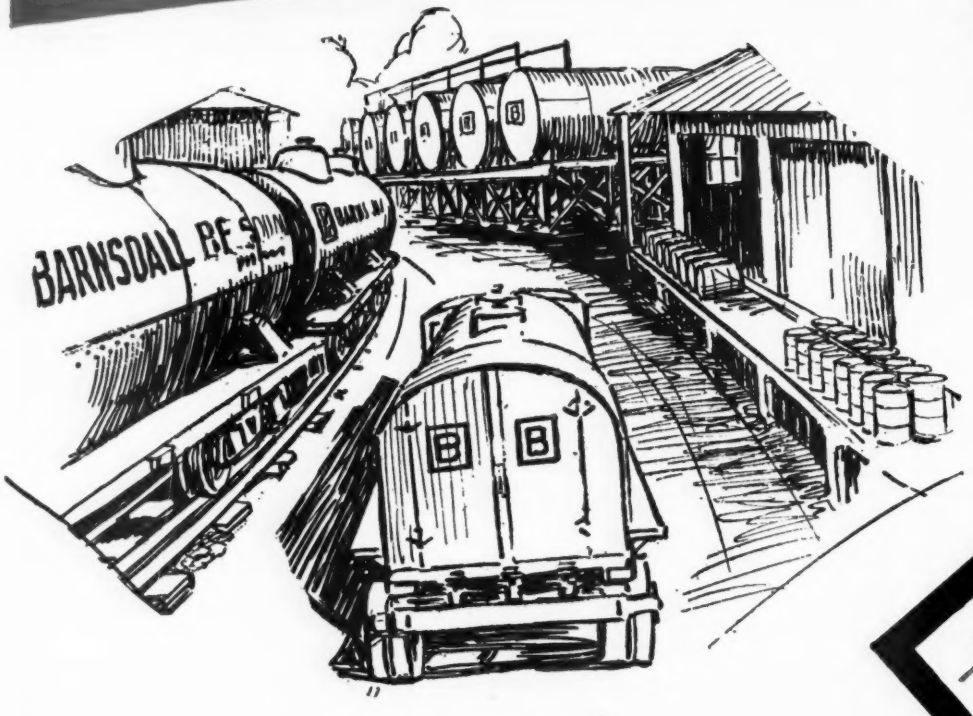

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At the breakfast table the other morning he was relating to his wife an incident that occurred at the lodge the previous night. The president of the order offered a silk hat to the brother who could truthfully say that during his married life he had never kissed any woman but his own wife. "And would you believe it, Mary?—not a one stood up."

"George," his wife said, "why didn't you stand up?"

"Well," he replied, "I was going to, but you know, dear, I look like hell in a silk hat."

—*Pure Oil News.*

* * *

The young druggist turned a morsel over in his mouth, tasting it skillfully. "'Smatter o' that cake, dearie?" he asked the lady who had recently consented to share his income. "Tastes kind of coaloily, doesn't it?"

"Oh, dear!" sobbed the bride, "I was afraid it wouldn't work but butter and lard and everything are so high I tried shortening with vaseline. We can get that at cost."

—*Magnolia Oil News.*

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Then again, if you are writing a story for the Bulletin, and find the task tedious and slow, don't be discouraged. Many a man has taken twenty years to finish a sentence.

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The story goes that a negro had been a servant in a rich house. There he learned proper English. One day he went to his home in Alabama. As he sat at the table his brother said: "Sam, give me some 'lasses."

"You mustn't say 'lasses," said Sam, "you must say 'Molasses.'"

His brother said angrily: "How's I gwine to say 'Mo-lasses' when I ain't had none yet?"

—*Magnolia Oil News.*

* * *

Then there was the absent-minded individual who put a dozen golf balls under a setting hen, and hatched out eight birdies and four eagles.

—*Union Oil Bulletin.*

Fond of Animals

Mr. Billerton, the butcher, was a jovial soul. As he was cutting up an order of lamb chops for a lady customer she asked curiously: "Mr. Billerton, what led you to choose your present occupation?"

"Well, really, I don't know, ma'am," explained Mr. Billerton. "Maybe it was because I have always been fond of animals."

—*Magnolia Oil News.*

* * *

"Mother," asked the small boy, "are there any oil wells in heaven?"

"No, my son, they have no drillers to drill oil wells."

—*Pure Oil News.*

* * *

Incidentally, the Scotchman, who spent ten dollars on his girl in one evening, has explained the matter very satisfactorily. That was all she had.

—*Union Oil Bulletin.*

* * *

Explained

A man, unaccustomed to praising his wife, went out of his way to call her an angel.

"Mary," he said one morning, "you are an angel," and she felt charmed all day.

In the evening she ventured to ask why she had been so honored.

"Well," said the wily one, "in the first place you are always flitting about; secondly, you are always harping on things; thirdly, by your own account, you have nothing to wear, and fourthly, you are up in the air most all the time."

—*Magnolia Oil News.*

* * *

One of our dock workers recently ran into a Chinaman and bumped him pretty badly, but we understand it was purely occidental.

—*Union Oil Bulletin.*

* * *

Moike Murphy approached his shanty home just as cuckoos proclaimed "three o'clock in the morning." Mrs. Murphy appeared at the door.

"And what kept you out till this hour of the night?" she demanded.

"Well, darlin'," replied Moike, "Oi've been iver since twilve o'clock tryin' to think up an excuse for not bein' home before midnight."

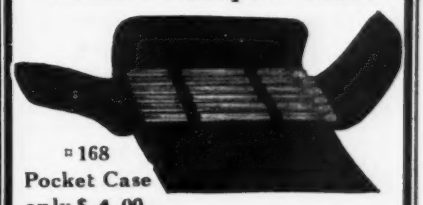
—*Magnolia Oil News.*

* * *

A fine reading course for the first-aid classes would be Carlyle's "Essay on Burns."

—*Union Oil Bulletin.*

Pocket Sample Cases



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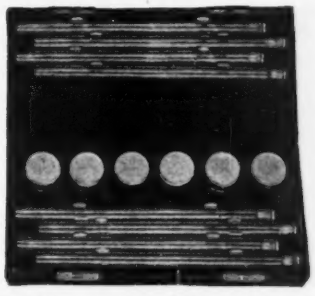
Sturdily constructed from black cobra grain cowhide. Lined with red plush. Contains six bottles. 9"x½".



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Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

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Halbert, Ward K. — **960.4**

"Shaffer Merchandises Furnace Oil Through Its Gasoline Stations"

National Petroleum News, June 6, 1928, pp. 57-59.

A description of Shaffer Oil & Refining Co.'s method of selling domestic heating oils through service station attendants in Chicago. Placards at stations lead a gasoline customer to inquire about burner oils. The salesman gives his sales talk and attempts to gain the customer's consent to send a contract. If the customer signs the contract the service station attendant receives a commission, based on the volume sold.

Sands, J. Melville — **305.111.32**

"Burbank Field, Osage County, Okla."

Bulletin of American Association of Petroleum Geologists, Oct. 1927, Vol. II, No. 10, pp. 1045-1054.

The influence of local structure on concentration of oil in the area is largely discounted. An undulating monocline with a general west dip of about 35 feet to the mile is described. The oil bearing horizon grades into an impervious shale on the north and east sides of the field, preventing petroleum moving farther up dip. On the west and lower side of the field the oil is in contact with salt water. The shale barrier has retained oil in its present position and porosity in the immediate vicinity of the individual wells has regulated production accordingly. Cross index under 111.32.

Johnson, J. E. — **940.3**

"Determination of Manufacturing Expense by Refinery Departments"

National Petroleum News, May 2, 1928, pp. 113-119.

Mr. Johnson, an accountant with the Waverly Oil Works Co., Pittsburgh, in a paper before the National Petroleum Association meeting at Cambridge Springs, April 19-20, described the method and forms used by his company in setting up costs of manufacturing and allocating them to the various departments of the refinery. Twenty-four forms for keeping records are shown.

Truesdell, Paul — **960.8**

"Field for Profit in Chassis Greasing Has Hardly Been Scratched"

National Petroleum News, June 13, 1928, pp. 21-22.

Evils of neglecting chassis lubrication, as against that of engine lubrication are discussed. Oil men have the opportunity to enter this market as most garages and automobile service establishments dislike doing the work, and as most motorists underestimate the need of chassis lubrication.

Hill, J. B. and Coats, H. B. — **200.**

"The Viscosity-Gravity Constant of Petroleum Lubricating Oils"

Industrial and Engineering Chemistry, June, 1928, Vol. 20, No. 6, pp. 641-644.

From data previously published, say the authors, with the Atlantic Refining Co., a mathematical relation has been worked out between Saybolt viscosity and specific gravity. The relation is a logarithmic one and expresses the specific gravity in terms of the viscosity and a constant which is different for each crude and is characteristic of it. This "viscosity-gravity constant" is low for the paraffinic crudes and high for the naphthenic crudes. Its value for any oil is a direct index of the degree of the paraffinic or naphthenic character which it possesses.

Koschmann, A. H. — **305.111.32**

"Geology of Payne county"

Oklahoma Geological Survey, Bulletin 40-X, January, 1928, 13 p., 30 cents.

Several pools of small areal extent but of substantial production have been developed in Payne county. The Wilcox sand is the horizon that is chiefly counted upon for future production. Structure determination by the usual field methods is difficult and extensive core drilling has been done in parts of the county, resulting in discovery of oil. Cross section of the county is given in the report, also maps of structure.

Truesdell, Paul — **741.**

"Cutting Costs in Steam Raising, Distillation and Filtering" Article 2

National Petroleum News, May 9, 1928, pp. 49-52.

This deals with a new still installed at the plant of the Seneca Oil Works, Warren, Pa., in which heat exchange is accomplished in a batch operation, which is unusual in plants of this type. The still is stoker-fired and saves 7 hours over an ordinary shell still in running down a 500-barrel charge of crude to a 605 flash bottom.

Recovery of Gasoline from Gases—The Bayer Charcoal Process

Part 1

By Ion Edeleanu

A Paper Read before the Rumanian Branch of the Institute of Petroleum Technologists, Dec. 16, 1927.

THE author of the accompanying paper, a son of Dr. Lazar Edeleanu, inventor of the sulfur dioxide process for treating kerosene and lubricating oils, after making revisions on this paper mailed it to NATIONAL PETROLEUM NEWS from Bucharest for publication. We are glad to be able to lay before our readers this treatise on recovery of gasoline from natural gas and still gases by the charcoal process, from the standpoint of an eminent European petroleum engineer.

THE importance of the recovery of gasoline from field and refinery gases is now recognized everywhere. The progress in number and efficiency of gasoline recovery plants is well known to you. The rate of increase in the amount of gasoline recovered from field and refinery gases is much ahead of the rate of increase of crude oil production.

For 1927 it is estimated that the natural gasoline industry of the United States will produce approximately 1,600,000,000 gallons from natural gas and approximately 340,000,000 gallons from uncondensed still vapors, giving a total of 1,940,000,000 gallons of gasoline, i. e., a daily production of approximately 5,400,000 gallons.

The production of gasoline from field and refinery gases is greater in the United States than the crude oil production in Rumania.

The above figure of 13,460 metric tons of daily production in the United States represents 5.2 per cent, by volume, or 4 per cent by weight, of the corresponding crude oil production in that country. At first glance 4 per cent is not a striking figure but if we assume that the price of gasoline, on weight basis is 3½ times higher than the price of crude oil, then we realize that the recovered gasoline represents 14 per cent, by value, of the crude oil.

In order to attain corresponding figures in Rumania, —i. e. a gasoline production of approximately 410 tons per day—the minimum installed capacity of gasoline recovery plants should be about 520 tons per day, (420 tons for field gases and 100 tons for uncondensed vapors in refineries). Unfortunately, natural gasoline production here in Rumania is still in its infancy. Furthermore, it should be noted that in general the natural gasoline industry has not yet attained its highest possibilities. Two new factors contribute to its further development. These factors are:

a—The system of air and gas lift of crude oil, which augments and regulates the available gas for gasoline recovery;

b—Improved methods in handling and storing, resulting in the maintenance of a higher percentage of volatile fractions in the crude, which fractions can not all be condensed with the ordinary refinery equipment. Therefore, there is an increasing necessity for the recovery of uncondensed still vapors.

There are three main processes employed by the natural gas industry:

The compression process,
The absorption process and
The activated charcoal (adsorption) process.

THE first named two processes are older and better known. They have their advantages and limitations. The charcoal process is of more recent date and its development has been remarkable.

The object of this paper is to describe the activated charcoal process of gasoline recovery, and especially the carbo-Union-Bayer process.

The absorbent medium "activated charcoal" is a composite material which chemically is characterized by a very high content (about 90 per cent) of carbon and physically is

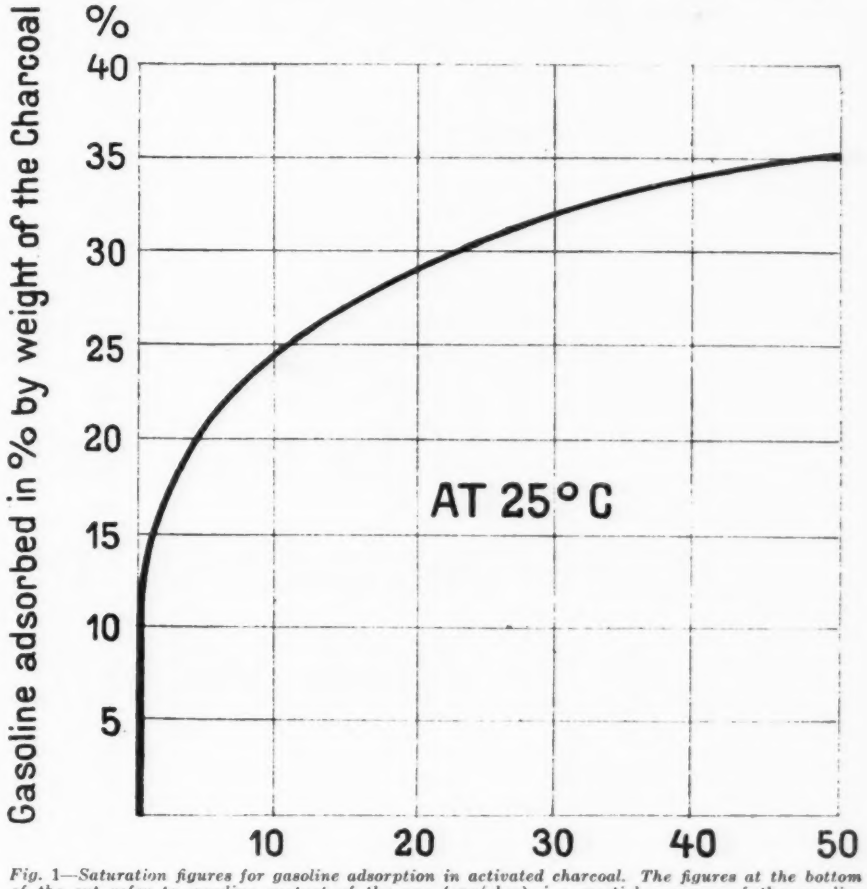

Fig. 1—Saturation figures for gasoline adsorption in activated charcoal. The figures at the bottom of the cut refer to gasoline content of the gas (grs/cbm) i. e. partial pressure of the gasoline vapor in the gas

The oil industry is now entering a new period The saturation point seems to have been reached in the establishment of filling stations From coast to coast they dot all traffic lanes — frequently four to a corner

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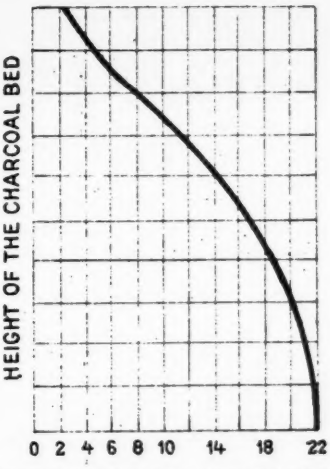


Fig. 2—Showing nonuniform value of gas

characterized by a great internal surface development compared to its mass.

In other words, the activated charcoal is a structure of capillaries with a notable great surface. If the capillaries of such a charcoal would be of the same size and would all have a diameter of 1 millimikron* then the inside capillary surface of a cube of one centimeter base would total about 6,000 square meters.

Ordinarily, the activated charcoal has capillaries of different sizes varying from 1 millimikron upwards and the inside capillary surface of a cube of one centimeter base is estimated to be about 600 square meters (6500 square feet). Such highly porous bodies possess the property of adsorbing gases and vapors.

IN fact, it is assumed that two phenomena take place:

1—the covering of the surface of the capillaries with a one molecule thick layer of gas; and

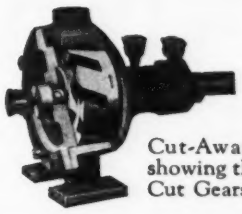
2—the filling of the capillaries with condensed vapors.

The first phenomenon depends upon, and is proportional to the surface; the second phenomenon which quantitatively is much more important, depends upon the inside capacity of the capillaries. Gases which can not be condensed (being above their critical temperatures) will undergo only the first phenomenon, but those vapors which are below their critical temperature and hence can be condensed will be absorbed to a greater extent because they will also undergo the second phenomenon, i. e. condensation and filling of the capillaries.

The charcoal has a lowering effect on the vapor tension of the adsorbed liquid. The adsorption depends upon the difference in vapor pressure of the condensed liquid in the capillaries of the charcoal and the partial pressure of the vapor in the gas.

The activated charcoal will adsorb and condense greater quantities of

*A millimikron is a millionth of a millimeter.



Cut-Away section showing the Helical Cut Gears.

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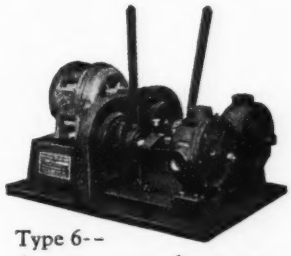
Study the illustration above and note that there are only two moving parts, the rotor and the idler pinion. Note also that the teeth in the pinion and the rotor go into mesh in a smooth and gradual way, preventing back lash and eliminating vibration.

The shearing cut on the column of liquid at the intake and discharge ports is another feature that makes the Perfection a smooth running pump.



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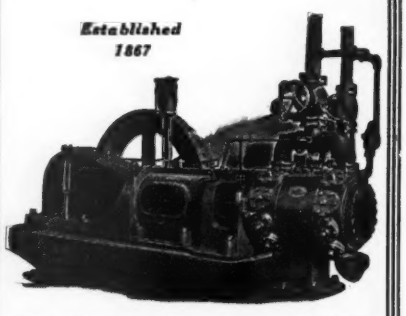

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vapor if such vapors are present in greater concentration in the gas; because in this case the difference in the vapor pressure of the liquid in the capillaries and the partial pressure of the vapor in the gas is greater.

SIMILARLY, the adsorption capacity of the charcoal decreases at higher temperatures: because the vapor pressure of the condensed liquid in the capillaries will be raised and hence the difference between this pressure and the partial pressure of the vapor in the gas will be reduced.

The adsorption is very rapid in the beginning of the process, slows up, however, as and when the charcoal becomes more saturated and ceases when the pressure of the condensed liquid in the capillaries equals the partial pressure of the vapor in the gas.

Diagram in Fig. 1 shows the percentage, by weight of gasoline adsorbed by the Bayer activated charcoal at 25 degrees C. temperature as a function of the content of gasoline in the gas or better said, as a function of the partial pressure of the gasoline vapor in the gas. Hereafter we shall call *Charge* the percentage by weight of the adsorptive in the adsorbent, and, we shall call *saturation* the charge beyond which the charcoal kept at a definite constant temperature, will no longer adsorb gasoline from a gas containing in a definite proportion these vapors. The saturation figures correspond to definite partial pressures of the gasoline vapor and to definite constant temperatures of the adsorbent.

Such figures are plotted in the diagram of Fig. 1; they are obtained only in laboratory tests, pursuing the experiment until the limiting charge (saturation) has been reached through the whole charcoal bed. In practice the charge is always less than the corresponding balanced saturation and is not uniform,

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having a greater value at the inlet side of the gas and decreasing towards the outlet side, as shown diagrammatically in Fig. 2.

Fig. 3 shows diagrammatically the structures of two different kinds of activated charcoal. The samples of these charcoals have been selected to have the same sizes of grains, so there is not much difference in the volume of the voids between the grains. There is a considerable difference between the volume of the solid carbon substance, which is due to the fact that the first charcoal is made from peat and the second one is made from fruit pits.

It will be readily understood that neither the voids nor the solid substance will act in the adsorption process. The balance of the volume is the volume of the capillaries. These capillaries are classified according to size into the following three categories:

1—capillaries bigger than 100 millimikron,

2—capillaries between 2 and 100 millimikrons,

3—capillaries smaller than 2 millimikrons.

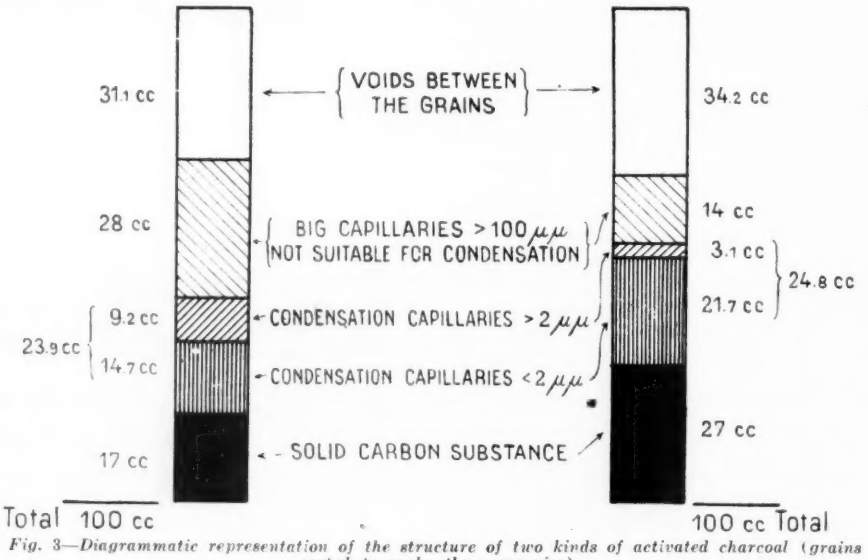
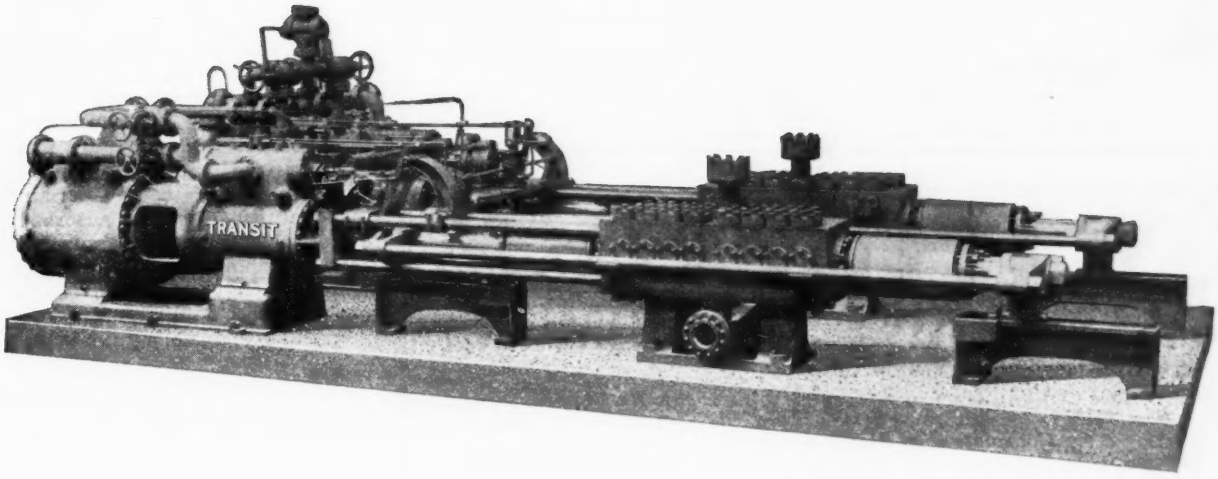


Fig. 3—Diagrammatic representation of the structure of two kinds of activated charcoal (grains sorted to make the same size)

Hotter–Heavier–Faster



AS cracking processes become more and more intensified, more and more is expected of the pumps. Above we illustrate one type of TRANSIT Hot Oil PUMPS produced to meet the demand for a pump to handle hot oil; hotter, at heavier pressure, and faster than heretofore.

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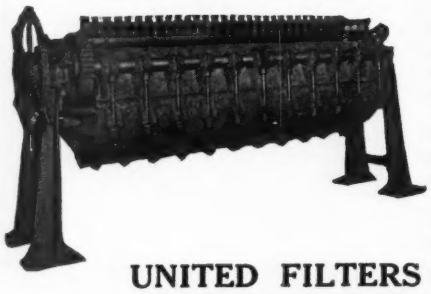

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While the capillaries of the first category are too large and therefore useless for condensation, the capillaries of the second and third categories are suitable for this purpose. Capillaries of more than 2 millimikrons can condense vapors only when they are present in a certain high concentration in the gas i. e. their partial pressure is great, whereas capillaries of less than 2 millimikrons (category 3) will condense vapors even if such vapors are present only in a very small proportion in the gas.

The total volume of the capillaries up to 100 millimikrons has been determined by the quantity of benzol adsorbed from a gas saturated with benzol vapors, whereas the total volume of the capillaries up to two millimikrons has been determined by the quantity of benzol adsorbed from a gas only one-tenth saturated with benzol vapors. The difference of these two figures has given the volume of the capillaries of the size between 2 and 100 millimikrons.

THE quantitative proportion between the two last mentioned categories of capillaries is a criterion whether such charcoal is better suited for the recovery of solvents in relatively high concentration or for the adsorption of gases. Extensive research work in this field has been carried out, under Prof. Hecklenburg's direction, in the laboratories of the Verein fuer chemische und metallurgische producktion.

In conclusion it can be stated that the quality of an activated charcoal depends:

1—on the development of inside capillary surface per unit of weight;

2—on the capillary volume per unit of weight;

3—on the diameter of the capillaries;

4—On the chemical character of the surface.

The above-named conditions can be adequately combined and proportioned only by a difficult manufacturing process. There are two main methods used at present in the manufacture of activated charcoal. In the first method the process is carried out in two steps: In the first step the raw material—in this case cocoa nut shells—is carbonized and in the second step it is activated under steam treatment of about 1,000 degrees C. In the second process the carbonization and activation is conducted simultaneously; the raw material is first impregnated with a strong watery solution of zinc chloride (or another activating substance) and then the process is conducted at about 500 degrees C. The first process is a gas activation process, whereas the second may be considered as a chemical activation process.

The second and concluding part of this article will be published in an early issue of NATIONAL PETROLEUM NEWS.

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Our Industry—A Page of Facts and Personalities

By Paul Wagner

National Petroleum News

Land and geological district offices at Oklahoma City have been abolished by the Texas Pacific Coal & Oil Co. J. B. (Jack) Kennedy of the land department has been recalled to Fort Worth executive offices, from which base he will handle Oklahoma affairs. E. P. Critchlow, geologist and land man, was transferred to New Mexico. Al Bodkins, production superintendent in Oklahoma, will continue to have offices at Oklahoma City.

* * *

The Cumberland Oil Co., composed of Woodland, Miss., bankers, has been reorganized with the following serving as its board of trustees: F. B. Bays, president, Bank of Woodland; J. E. Woffard, Woodland; J. E. Trussell; Clarke W. Clarke, Fort Worth; A. W. Reynolds, Starkville, Miss., and B. H. Baine, Houston, Miss. A second test for oil is to be drilled in Webster county, Miss.

* * *

W. M. Harper, producing department office assistant at Seminole, Okla., for Magnolia Petroleum Co., under Supt. J. W. Tipton, has been transferred to the Iatan district, at Westbrook, Texas, as chief clerk to Supt. C. V. C. Bradley. He succeeds Lee Cummins, now chief clerk and cost accountant under Supt. Ross Cribbs of the Shreveport, La., machine shop.

* * *

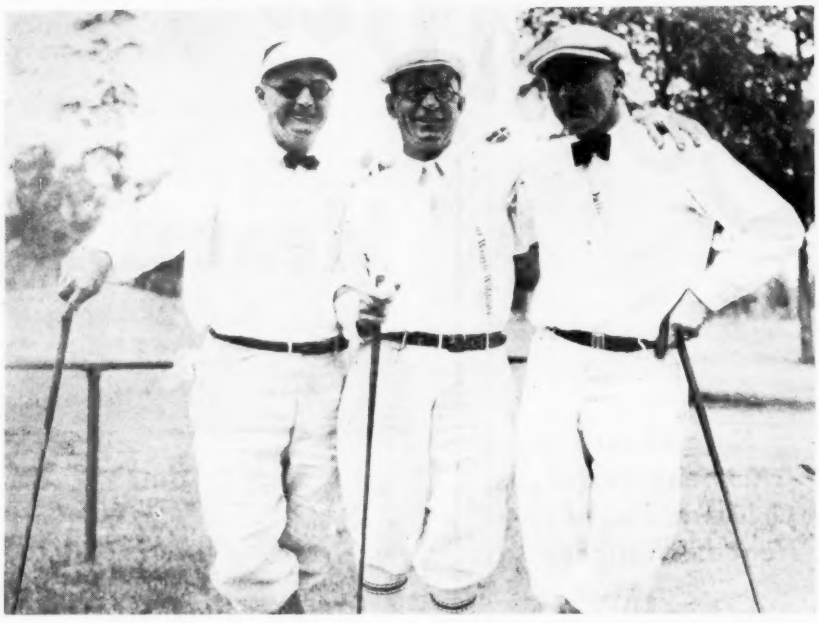
Campbell C. Osborn, formerly economist in the Marland organization at Ponca City, Okla., announces the opening of offices in the Kennedy building at Tulsa and the Hill building at Washington. He will practice law in addition to consultations on petroleum supply and demand, investments and valuations.

* * *

John A. Brown, long identified with foreign service of the Standard Oil Co. of New Jersey, has transferred his allegiance to the Standard Oil Co. of New York. He is now a director and vice-president of the General Petroleum Corp., a subsidiary. At one time Mr. Brown was head of the New Jersey Standard's operating subsidiary in Mexico, the Transcontinental Petroleum Co.

* * *

Walter B. Pyron, third vice-president of Gulf Production Co., Houston, is also president of the newly organized Southwestern Air Service Co., which will operate passenger planes to all parts of the United States and Mexico.



From left to right, W. H. (Bill) Francis, E. P. Angus, and Mark McLaughlin, three members of the Magnolia Petroleum Co.'s family playing golf at a tournament of the "wildcat committees" of the Texas division, Mid-Continent Oil & Gas Association

They are "nothing if not pals," say the three members of the Magnolia Petroleum Co. family shown in the accompanying snapshot. When taking time off at Dallas headquarters they may be found often golfing together. At the office their teamwork is widely recognized. They are, from left to right: W. H. (Bill) Francis, vice-president and general counsel; E. P. Angus, acting sales manager, and Mark McLaughlin, production department.

The picture was taken at a golf tournament of "wildcat committees" of the Texas division, Mid-Continent Oil & Gas Association, when Mr. Angus stepped out of his regular role as a Dallasite to play for Forth Worth.

* * *

R. R. Thompson and Gustav Peters are now associated as consulting geologists with offices in the Petroleum building, Fort Worth. Mr. Thompson was formerly with the Texas Pacific Coal & Oil Co., and later with the Philmack Co.

* * *

Union Oil Co. of California, which operates in Texas through its Nevada subsidiary, has moved its southern offices from San Angelo to Abilene, Texas. J. P. Byram is land department superintendent and Coy B. Jones geologist in charge.

* * *

L. F. Barrows, north central Texas division manager of The Texas Co. at Fort Worth, was in California recently in connection with the purchase of the California Petroleum Corp., by The Texas Corp. The Pacific Coast properties taken over include four refineries, five ocean terminals and extensive marketing facilities. Crude oil production of the California company approximates 50,000 barrels daily and natural gasoline recovery about 162,000 gallons daily.

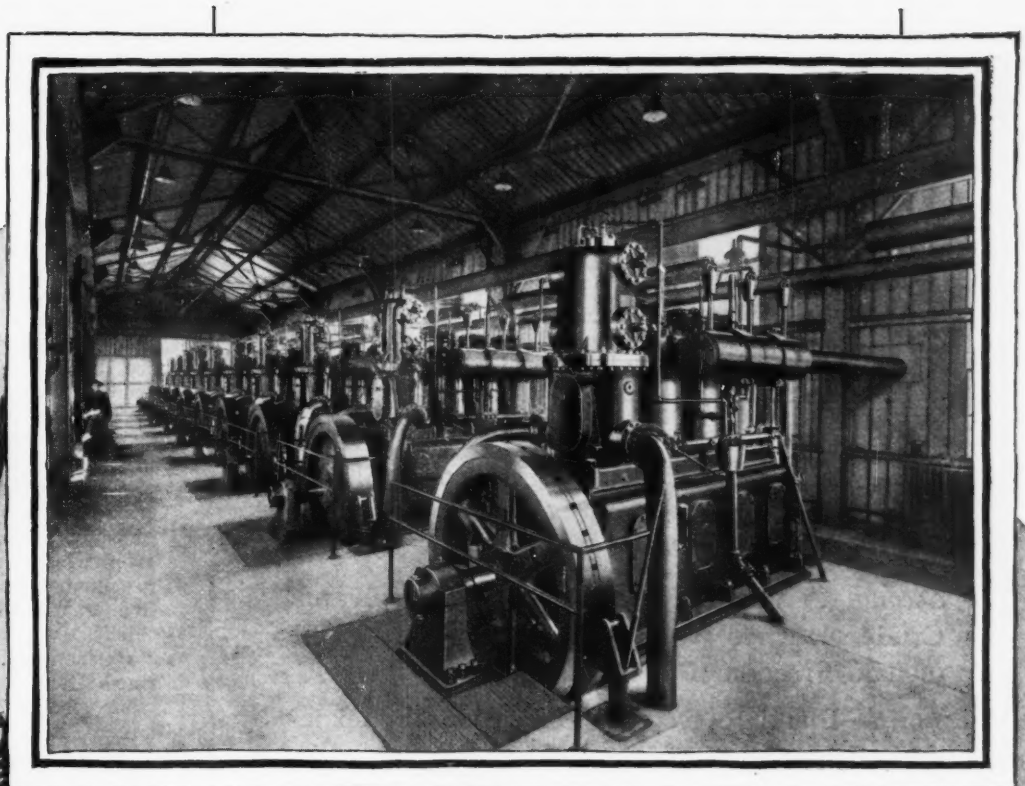
* * *

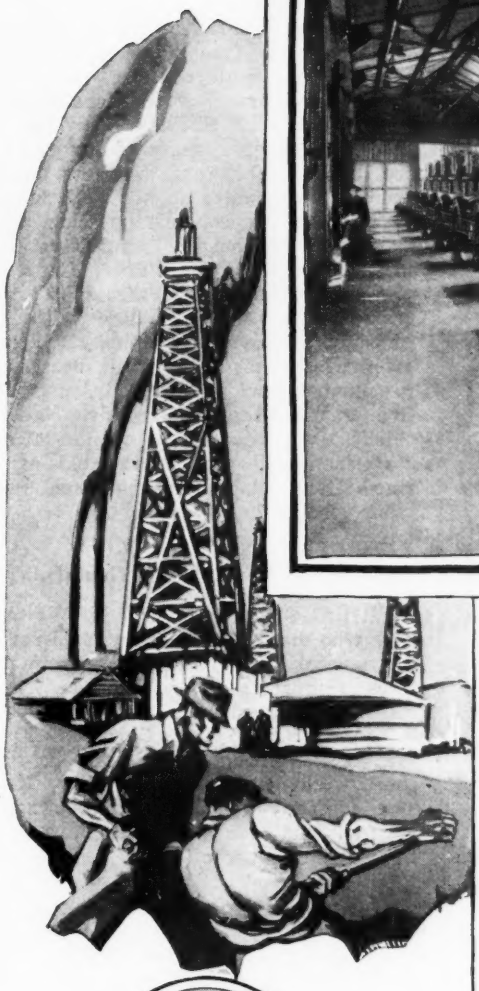
A corporation known as the Compania Deshidratadora, S. A., has been formed in Mexico to dehydrate oil in the old Topila sump of the East Coast Oil Co. of Mexico, S. A., in the general Panuco district. It is estimated there is a total of about 300,000 barrels of oil that has weathered in the sump about 13 years. In its present condition the oil is high in asphaltic content.

T. J. Hudson is president of the company, G. W. Johnson, vice-president, and J. W. Poole, secretary-treasurer. Mr. Poole, a graduate of M. I. T., who formerly was chief chemist at Tampico for the Pierce Oil Co., is in charge also of technical operations.

* * *

R. H. Ames, field superintendent in the Tampico district for the Mexican Eagle Oil Co., Ltd., (El Aguila) plans to visit California on a two months' trip to the United States.





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Bulletin 1601.

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- 650 Steam Refined

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FREEDOM

Will Employee Ownership Defeat Demagogs?

BOSTON, June 22.—The increasing ownership of corporate securities by employes and customers of the corporations is not only a great stabilizing factor in American industry, but will eventually free industry from its fear of political changes, declares Prof. T. N. Carver, of the department of economics of Harvard University.

"When the great mass of our people are both owners and workers, and therefore compelled to see both sides of every great economic question, the danger of a hostile administration will disappear," says Prof. Carver. "No one will really be afraid of any party or of any candidate with a ghost of a chance of election. Strikes, even while they exist, will decrease in number and violence. Constructive rather than destructive labor policies will dominate, while labor statesmen will replace the old-fashioned 'first class fighting men' as labor leaders."

H. N. Whitaker Joines Gustafson

CHICAGO, June 25.—H. N. Whitaker, who has been refinery salesman for several years, has been appointed sales representative in Kansas, Nebraska, Missouri and Iowa of Gustafson Bros. Oil Co., Chicago. Mr. Whitaker's headquarters will be in the Dwight Bldg., Kansas City, Mo. The company specializes in the sale of fuel and gas oils, distillate and Real Penn motor oil.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"SUNSET" No. 264,962. California-Eastern Oil Co., Los Angeles, Calif. For gasoline, kerosene, benzine, fuel oil, lubricating oils and greases, etc.

"SATIN OIL" "LIVES IN FIRE LIKE THE SALAMANDER" No. 259,283. Gibson Oil Co., Fort Smith, Ark. For lubricating oil.

"TELO" No. 262,382. Texas Pacific Coal and Oil Co., Fort Worth, Texas. For lubricating oils.

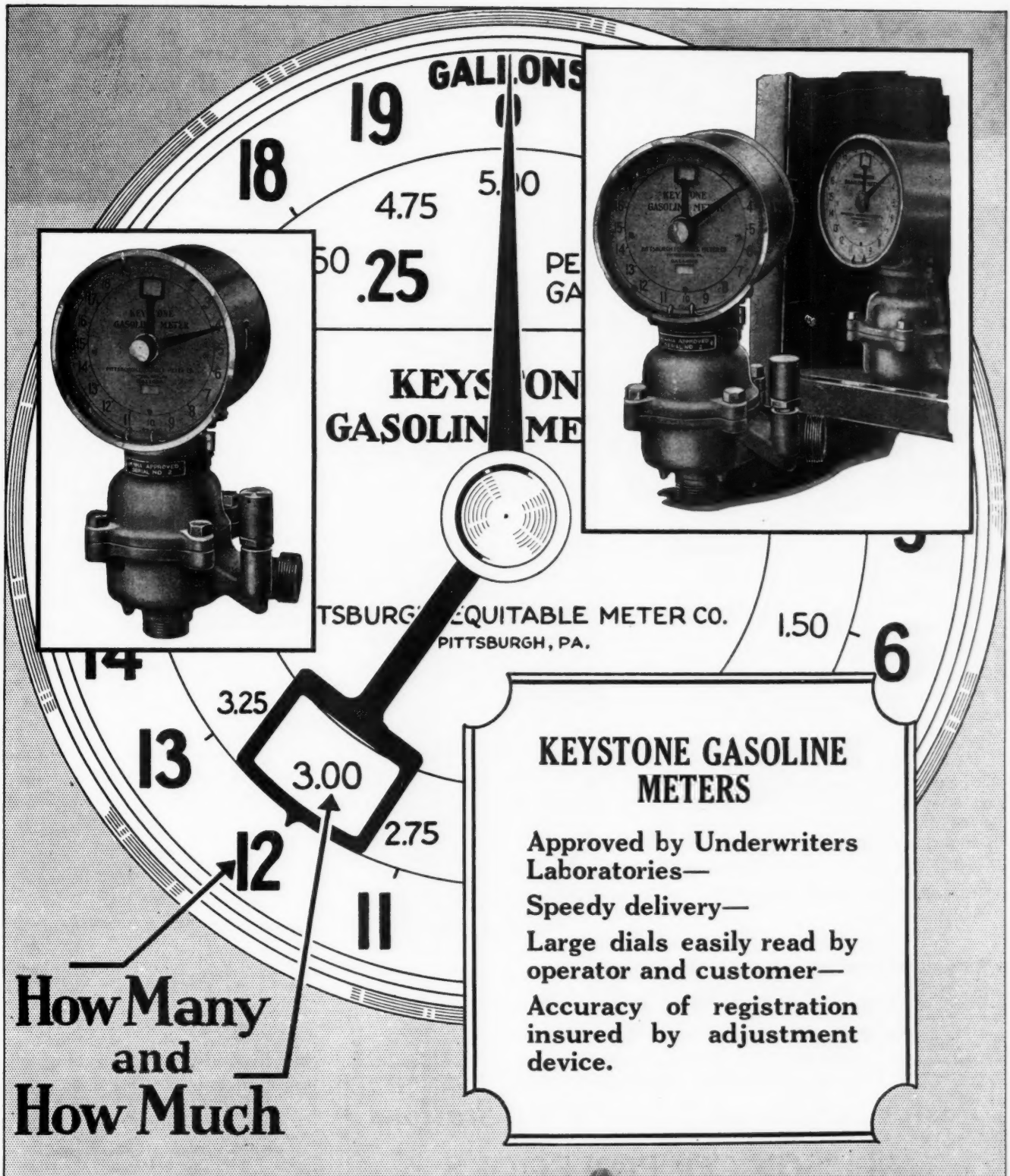
"PENNPRUF" No. 249,491. Carl Studna, Kansas City, Mo. For lubricating oils.

"MIXTROL" No. 253,771. George Fitzhardinge Rose, London, England. For lubricating oils.

"GRATE STUF" No. 258,361. Fred Swain, Ohio, Illinois. For lubricating and cutting oils and greases.

"RED LOCK" No. 262,554. Chicago Motor Oil Co., Chicago, Ill. For motor fuel and lubricating oils.

"MILES OF SMILES BETHOLINE, THE WONDER MOTOR FUEL" No. 263,178. Sherwood Bros. Inc., Baltimore, Md. For gasoline.



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Bellefontaine, O.—Sinclair Refining Co., bulk station.
San Antonio, Tex.—George Herder and Kennedy Rogers, filling station.
Bay City, Tex.—The Texas Co., filling station.
Whitestown, Ind.—Standard Oil Co. of Indiana, filling station.
Olney, Ill.—Ernest Warren, filling station.
Post Creek, Minn.—Mr. Demmick, filling station.
Anaconda, Mont.—Jess Simpkins, filling station.
Sugar Creek, O.—William Finzer, filling station.
Mt. Gilead, O.—Cities Service Oil Co., filling station.
Fort Smith, Ark.—Marland Refining Co., filling station.
Paris, Ky.—John Farris, filling station.
Fort Dodge, Ia.—Fort Dodge Oil Co., filling station.
Waterloo, Ia.—Standard Oil Co. of Indiana, filling station.
Madison, Wis.—Ross M. Koen Realty Co., filling station.
Waverly, Minn.—Erwin Vaughn, filling station.
Martins Ferry, O.—Ohio Valley Oil Co., filling station.
Utica, O.—Roxana Petroleum Corp., filling station.
Archbold, O.—George Hartman, filling station.
Conneaut, O.—Standard Oil Co. of Ohio, filling station.
Pomeroy, O.—E. C. Atkinson, filling station.
Wilmington, Del.—Newton Wetstein, filling station.
Broadview, Mont.—Broadview Seed Co., filling station.
Madison, Wis.—Robert Mitchell, filling station.
Anoka, Minn.—Main Oil Co., filling station.
Great Falls, Mont.—Arro-Great Falls Gas Co., filling station.
Union, Ia.—John McLaud, filling station.
Mount Pleasant, Ia.—Fred McClain, filling station.
New Prague, Minn.—New Prague, Co-Operative Oil Co., filling station.
Eagle River, Wis.—Wadhams Oil Co., filling station.
Sioux Falls, S. D.—Standard Oil Co. of Indiana, filling station.
Sioux Falls, S. D.—A. B. Anderson, filling station.
Pipestone, Minn.—R. S. Butcher, filling station.
Gary, Ind.—Monarch Oil Co., greasing station.
Gary, Ind.—Lee Oil Co., bulk plant.
San Antonio, Tex.—Gulf Refining Co., $20,000 filling station.
Oskaloosa, Ia.—Mid-Continent Petroleum Corp., filling station.
Grand Forks, N. D.—George E. Duis, filling station.
Grand Forks, N. D.—R. C. Lazier, filling station.
Chambersburg, Pa.—H. G. Slaughenhaup, filling station.
Minneapolis, Minn.—W. A. Smith, filling station.
Russell, Minn.—O. C. Wallin, filling station.
Carrington, N. D.—White Eagle Oil & Refining Co., filling station.
Bloomington, Wis.—Melvin Garthwaite, filling station.
Lincoln, Neb.—J. Immenhausen, filling station.
Cedar Rapids, Ia.—Mid-Continent Petroleum Corp., filling station.
Deer River, Minn.—Range Oil Co., Hibbing, filling station.
Breckenridge, Minn.—M. D. Williams, filling station.
Laurelville, O.—Mr. and Mrs. F. C. Hilliard, filling station.
Menard, Tex.—Menard Filling Station rebuilding.
Nacogdoches, Tex.—Zeno Cox, filling station.
Portsmouth, O.—Refiners Oil Co., Dayton, filling station.
Cambridge, O.—Standard Oil Co. of Ohio, filling station.
St. Paul, Minn.—W. H. O'Connor, filling station.
Manistique, Mich.—James Troyer Sr., filling station.
De Smet, S. D.—G. G. Johns, filling station.
Lake City, Minn.—Standard Oil Co. of Indiana, filling station.

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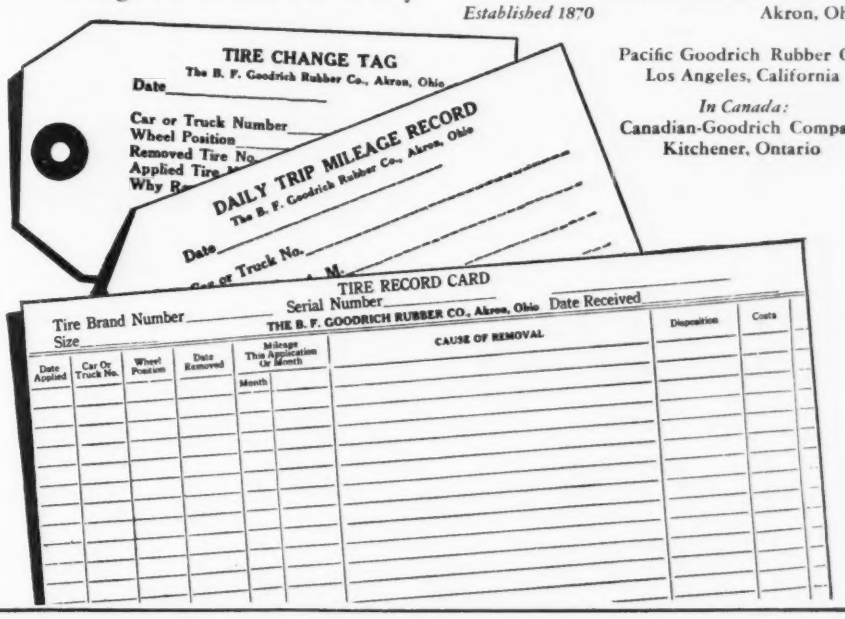

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Refinery - Tank Wagon Markets

National Petroleum News

Mid-Continent Gasoline Prices Rise When Export Buying is Heavy

Staff Special
TULSA, June 23

EXPORTERS, Thursday and Friday of the week ended June 23, purchased approximately 7,000,000 gallons of gasoline out of north Texas, paying as high as 8.50 cents, a record purchase price this year for 64-66, 375 e. p. gasoline. Sales of U. S. Motor for export were also made and inquiries were in the market for 41-43 prime white kerosene, although none of the latter was bought.

Domestic gasoline business was reported good throughout the Mid-Continent, although refiners in most areas said rainy weather had retarded buying. One Texas refiner said export business had taken from the spot virtually all gasoline of the two grades bought by the exporters.

Prices of kerosene, distillate, gas oils and fuel oils decreased in all sections. Neutral oils and cylinder stocks maintained prices set several weeks ago and refiners reported both spot and deferred orders were good. Orders increased for bright stocks at unchanged prices.

Natural gasoline prices were higher June 23, with most sellers reporting they were sold up for several days. Grades B, BB and C were comparatively scarce and were only 0.25 cent below A and AA prices.

Gasolines

Export buyers June 18 renewed their offers in Texas of 8.125 cents for 64-66, 375 e. p. gasoline and 4.50 cents on 41-43 prime white kerosene, but were unable to obtain any goods. One exporter then withdrew but returned late June 21 and paid 8.25 cents for 1,000,000 gallons of 64-66, 375 e. p. gasoline. The following day two other exporters bought 3,000,000 gallons at 8.25 and 8.375 cents and later the same day one paid 8.50 cents for 500,000 gallons.

U. S. Motor inquiries came June 21 also and one refiner sold 1,000,000 gallons at 7.875 cents over 30 days. It was reported that a resale agent had purchased approximately 2,000,000 gallons for which he paid 7.75 cents.

Despite the bad weather which retarded sales and caused stocks to accumulate recently at many Mid-Continent refineries, most sellers reported there was a good demand for domestic gasolines. U. S. Motor prices in Arkansas, Louisiana and Kansas advanced 0.125 to 0.25 cent. Kansas refiners were obtaining 8 to 8.125 cents June 18 and advanced their top price 0.125 cent June 23. Some sales have been made in Kansas at 8.375 cents although they have not been of sufficient volume to become a factor in the market.

U. S. Motor in Arkansas and Louisiana was 8.50 cents June 23, an advance of 0.25 cent over June 18 price. Arkansas refiners reported they were well sold up and at least one was behind on shipments. Most of the Louisiana gasoline is being moved on contracts.

Following the export buying light gasolines advanced in Texas and Oklahoma.

Group 3 refiners June 23 were selling U. S. Motor at 7.75 to 8 cents. The 7.75-cent price was 0.125 cent below the low figure of the week before.

Blended gasolines were in good demand in Group 3 also. One large blender said June 23 that he was selling at 7.50 cents that he had sold at 7.50 cents for shipment into Ohio.

Refiners in all sections were reluctant to quote on July business, several stating they would make no July quotations until later this month. The general idea is 8 cents for U. S. Motor in Group 3 although some refiners said they believed 8.25 cents would not be out of line. Outside Group 3, no refiners offered July prices.

Natural Gasolines

Natural gasolines advanced 0.25 to 0.75 cent because of fairly heavy buying June 19 and 20. June 19 one large buyer paid 5.875 cents for 25 cars of doctor test grade AA, an 0.125 cent advance over the market in the morning. He also bought 25 cars later paying 6.25 cents on a deal which had been pending more than a week. It was also understood that 100 cars of doctor test material had been contracted for, the company supplying the material having to cover in the open market. June 23 no Grade AA could be purchased under 6.25 cents and some moved as high as 6.50 cents.

Grades B, BB and C moved to 6 cents June 20. Only a limited amount of B, BB and C is available at present. One large company has virtually all the available doctor test BB and little untreated material is being offered. June 23, B, BB and C were selling for 6.125 and 6.25 cents. One large manufacturer announced he would buy B, BB or C at 6 cents but was unable to find any at that price. A broker had some non-doctor BB which he was holding for 6.125 cents.

Kerosene

Prices of kerosenes were down 0.25 to 0.375 cent and demand was slow. June 23 41-43 w.w. kerosene was selling at 4.625 to 4.75 cents in Oklahoma with some sales at 4.50 cents. One refiner said some kerosene had been sold on a Group 3 rate which had netted back only 4.40 cents Oklahoma.

The 41-43 w.w. grade was selling June 23 in Texas at 4.50 to 4.75 cents. Kansas prices decreased from 5 50 cents June 18 to 5.125 and 5.375 cents June 23. A few sales were reported June 23 at 5.50 cents. Arkansas and Louisiana refiners held their price of 5.50 cents until June 23 when it fell to 5.25 cents.

Gas Oil, Distillate

One refiner in Oklahoma said his gas oil business was good and that he had no trouble obtaining 2.625 cents but others asserted 2.375 cents was the best they could get and that orders were not brisk at that price. Prices were unchanged in Kansas, Arkansas, Louisiana and Texas.

Fractional price decreases were noted in distillates in Oklahoma and Kansas. Refiners in other districts held their prices although there was no demand. In Oklahoma June 18 prices were 2.75 to 3 cents June 23.

Low gravity fuel oils in Oklahoma

(*Continued on page* 120)

Refinery Markets on LightOils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices June 25	Prices June 18	Prices June 11
52-54 Naphtha	9.75 –10.50	10.00 –10.50	9.75 –10.50
54-56 Naphtha	10.00 –10.75	10.00 –10.50	10.00 –10.50
58-60 U.S. Motor 437 e.p.	10.50 –11.00	10.50 –11.00	10.50 –11.00
60-62 400-410 e.p. gasoline	10.75 –11.50	11.00 –11.50	11.00 –11.50
64-66 390 e.p. gasoline	11.375–11.75	11.25 –11.75	11.25 –11.50
68-70 Str.-run gas. 350-360 e.p.	11.50 –12.50	11.50 –12.50	11.50 –12.25
OKLAHOMA			
48-50 450 e.p. naphtha	†7.25 – 7.375	†7.25 – 7.375	†7.25 – 7.375
50-52 450 e.p. naphtha	†7.25 – 7.375	†7.25 – 7.375	†7.25 – 7.375
56-58 450 e.p. gasoline	7.375– 7.50	7.375	7.375
58-60 450 e.p. gasoline	7.50 – 7.625	7.50	7.50
64-66 390 e.p. gasoline	8.125	8.00 – 8.125	7.875– 8.00
68-70 350-360 e.p. gasoline	8.375 – 8.50	8.25 – 8.375	8.25 – 8.375
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	7.8597	7.8033	7.7926
60-62 437 e.p. gasoline	7.9375	7.7917	7.8750
60-62 400 e.p. gasoline	8.1250	8.0000	8.0000
64-66 375 e.p. gasoline	8.1667	8.1250	8.1875

Above are weighted average prices, current week's prices being effective on Saturday, instead of Monday, Saturday being the last day on which weighted averages are available for publication in this table. Weighted average prices for the current Monday are published on page 37 of this issue. The two previous week's prices shown are corrected to show Monday's prices, effective on the dates shown at the top of the columns.

KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	8.00 – 8.25	8.00 – 8.125	7.875
60-62 400 e.p. gasoline	8.25 – 8.375	8.125– 8.25	8.00 – 8.125
64-66 375 e.p. gasoline	8.375	8.25 – 8.375	8.125– 8.375
NORTH TEXAS			
48-52 450 e.p. naphtha	†7.25	†7.25	†7.25
56-58 450 e.p. gasoline	†7.375– 7.50	†7.375– 7.50	†7.375– 7.50
58-60 450 e.p. gasoline	†7.50	†7.50	†7.50
58-60 U.S. Motor 437 e.p.	7.875– 8.00	7.875– 8.00	7.75 – 7.875
60-62 400 e.p. gasoline	8.125– 8.25	8.00 – 8.125	7.875– 8.00
64-66 390 e.p. gasoline	8.25	8.125	8.00 – 8.125
64-66 375 e.p. gasoline	8.50	8.125– 8.25	8.125– 8.25
68-70 350-360 e.p. gasoline	8.50 – 8.625	8.25 – 8.375	8.25 – 8.375
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	8.50	8.25	8.25
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	7.75 – 8.00	7.625– 7.75	7.625
58-60 450 e.p. gasoline	7.875– 8.125	7.75 – 7.875	7.75
58-60 U.S. Motor 437 e.p.	8.50	8.25 – 8.50	8.25
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p.	8.00 –11.50	8.00 –11.50	8.00 –11.50
58-61 U.S. Motor 437 e.p.	10.00 –13.00	10.00 –13.00	10.00 –13.00
42-45 Eng. dis. 445-480 e.p.	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

‡3c tax to be added to California gasoline prices if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T).

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	**6.50 – 6.625	5.75	†6.00 – 6.25
Grade A, 72-79.9, 90% Recovery	**6.50 – 6.625	5.75	†6.00 – 6.25
Grade BB, 84-92, 85% Recovery	6.25	5.75	†5.75 – 6.00
Grade B, 76-83.9, 85% Recovery	6.25	5.75	†5.75 – 6.00
Grade C, 80-92, 78% Recovery	6.25	5.75	†5.75
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	**6.50 – 6.625	5.75	†6.00 – 6.25
Grade A, 72-79.9, 90% Recovery	**6.50 – 6.625	5.75	†6.00 – 6.25
Grade BB, 84-92, 85% Recovery	6.25	5.75	†5.75 – 6.00
Grade B, 76-83.9, 85% Recovery	6.25	5.75	†5.75 – 6.00
Grade C, 80-92 78% Recovery	6.25	5.75	†5.75
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†6.50 – 6.75	†6.25	†6.50 – 6.75
Grade BB	†6.25 – 6.50	†5.00 – 6.25	†6.00 – 6.25
Grade C	†6.25 – 6.50	†6.00 – 6.25	†5.75 – 6.00
CALIFORNIA			
75-85, 375-390 e.p. blend	6.00 – 7.00	6.00 – 7.50	7.00 – 8.00

MOTOR FUEL BLENDS

OKLAHOMA			
64-66 Blend 437 e.p.	†7.50	†7.375– 7.50	†7.25 – 7.50

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	6.50 – 7.125	6.50 – 7.00	6.50 – 7.25
46 w.w. kerosene	6.75 – 7.375	6.875– 7.50	6.875– 7.50
47 w.w. kerosene	7.125– 7.50	7.25 – 7.50	7.25 – 7.50
300 mineral seal	7.25 – 7.75	7.50 – 7.75	7.50 – 7.75
OKLAHOMA			
41-43 w.w. kerosene	4.625– 4.75	4.75 – 5.00	5.00 – 5.125
42-44 w.w. kerosene	5.00	5.00 – 5.25	5.375– 5.50
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	4.75 – 5.125	5.50	5.50 – 5.75
42-44 w.w. kerosene	5.25 – 5.50	5.75	5.75 – 6.00
NORTH TEXAS			
40-42 w.w. kerosene	†4.125– 4.25	†4.50 – 4.625	†4.50 – 4.625
41-43 w.w. kerosene	†4.375– 4.50	†4.75 – 4.875	†4.75 – 4.875
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	5.25	5.50	5.75
ARKANSAS (Arkansas destination only)			
42-44 kerosene	5.25	5.50	5.50
CALIFORNIA			
38-40 w.w. kerosene	5.50 – 6.00	5.00 – 5.50	5.00 – 5.50

NEUTRAL OIL

PENNSYLVANIA Vis.			
	(Viscosity at 70°F.)		
200 No. 3 Assoc. Filt.	33.00 –34.00	33.00 –35.00	33.50 –35.00
180 No. 3 Assoc. Filt.	31.50 –32.00	31.50 –33.00	31.50 –33.00
150 No. 3 Assoc. Filt.	27.50 –28.00	27.50 –29.00	27.50 –29.00
	(Non Viscous)		
34 Grav. 330-340 Flash	7.75 – 9.00	7.75 – 9.00	7.75 – 9.00
36 Min. Neut. 300-305 Flash	7.00 – 8.50	7.00 – 8.50	6.75 – 8.50
OKLAHOMA Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.625–11.00	9.625–11.00	9.625–11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	9.00 –10.50	9.00 –10.50	9.00 –10.50
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
GULF COASTAL Vis. Color	(Viscosity at 100°F., pour test 0)		
100—No. 2 Unfilt. Pale	6.75 – 7.25	6.75 – 7.25	6.50 – 7.00
200—No. 3 Unfilt. Pale	10.00 –10.50	9.50 –10.25	9.50 –10.25
300—No. 3 Unfilt. Pale	11.00 –11.50	10.75 –11.50	10.50 –11.25
500—No. 3½ Unfilt. Pale	13.00 –13.50	12.75 –13.50	12.50 –13.25
750—No. 4 Unfilt. Pale	15.50 –16.00	15.00 –16.00	14.50 –15.50
200—No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.50	7.50 – 8.25
300—No. 5½ Red Oil	9.00 – 9.50	9.00 – 9.50	8.75 – 9.25
500—No. 6 Red Oil	10.50 –11.00	10.50 –11.00	10.00 –10.50
750—No. 6 Red Oil	13.50 –14.00	13.00 –14.00	12.75 –13.50
CALIFORNIA Vis. Color	(Viscosity at 100°F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450—No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550—No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600—No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400—No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500—No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600—No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700—No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	21.50 –24.00	21.50 –24.00	21.50 –24.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.50 –10.00	8.50 –10.00	8.50 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	11.50 –13.00	11.00 –12.00	10.50 –11.75
650 Steam Refined	13.50 –15.50	13.00 –15.00	12.50 –15.00
600 Flash	16.50 –18.00	17.00 –20.00	16.00 –20.00
625 Flash	27.00 –29.50	26.00 –29.00	25.00 –29.00
600 Warren E	17.00 –18.00	16.50 –17.50	16.00 –17.50
600 Oil City E	16.50 –17.00	15.50 –17.00	15.50 –17.00
600 D Filtered	22.00 –26.00	22.00 –26.00	22.00 –26.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	35.00 –36.00	35.00	34.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	33.00 –34.00	33.00	32.00

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations

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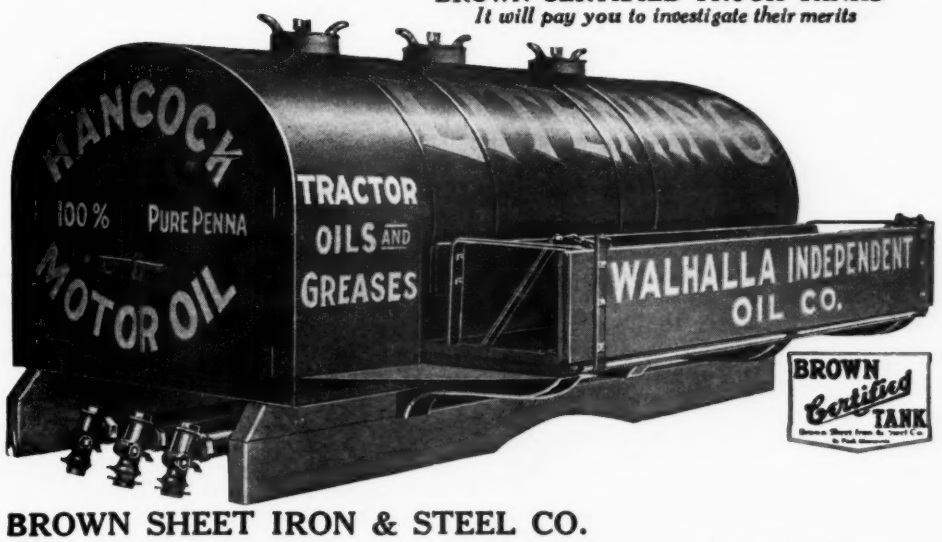

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Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices June 25	Prices June 18	Prices June 11
Per pound, New York			
122-124 white crude scale	4.25 - 4.50	4.375- 4.50	4.25 - 4.50
124-126 white crude scale	4.50	4.50	4.25 - 4.50
OKLAHOMA			
**124-126 White Crude Scale	4.25	4.25	3.875- 4.125
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 - 6.50	6.00 - 6.50	6.00 - 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	5.00 - 5.25	5.00 - 5.25	5.00 - 5.50
30-34 fuel oil	4.75 - 5.00	4.75 - 5.00	4.75 - 5.125
28-32 fuel oil	4.50 - 5.00	4.50 - 5.00	4.50 - 5.00
OKLAHOMA			
38-40 straw distillate	2.875 - 3.00	3.00 -3.125	3.00 - 3.125
36-38 straw distillate	2.75	3.00	3.00
32-36 gas oil, straw	†2.50 - 2.75	†2.50 - 2.75	†2.625- 2.75
32-36 dark gas oil	2.375- 2.50	†2.375-2.625	2.625
28-30 fuel oil (in bbls.)	$0.85 - 0.875	$0.85 - 0.875	$0.875- 0.90
26-28 fuel oil (in bbls.)	$0.775- 0.825	$0.775- 0.825	$0.80 - 0.825
24-26 fuel oil (in bbls.)	**$0.70- 0.75	**$0.70- 0.75	**$0.725- 0.75
22-26 fuel oil (in bbls.)	**$0.65- 0.70	**$0.65- 0.70	**$0.675- 0.70
18-22 fuel oil (in bbls.)	**$0.65- 0.70	**$0.65- 0.70	**$0.675- 0.70
16-18 fuel oil (in bbls.)	**$0.625- 0.65	**$0.65- 0.675	**$0.65 -0.675
14-16 fuel oil (in bbls.)	**$0.625-0.65	**$0.65- 0.675	**$0.65 -0.675
KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.25	3.25 -3.375	3.25 - 3.50
36-38 straw distillate	3.00	3.00	3.00
32-36 gas oil	2.625- 2.75	2.625- 2.75	2.625- 2.75
24-26 fuel oil	*$0.80 - 0.825	*$0.825- 0.875	*$0.875- 0.90
18-22 fuel oil	*$0.70 - 0.725	*$0.725- 0.75	*$0.75 - 0.775
NORTH TEXAS			
38-40 straw distillate	2.75 - 3.00	2.875- 3.00	2.875- 3.00
32-36 gas oil, cracked	2.25 - 2.375	2.25 - 2.375	2.375
32-36 gas oil, uncracked	2.25 - 2.375	2.25 - 2.375	2.375
24-26 fuel oil (in bbls.)	$0.60	$0.625- 0.65	$0.65

†Prices Nominal ††Only One Refiner Quoting *Quotations only

GULF COASTAL	Prices June 25	Prices June 18	Prices June 11
Fuel (in bbls.)	$1.30 -$1.35	$1.30 -$1.35	$1.30 -$1.35
Gas oil	4.25 - 4.375	4.25 -4.375	4.25 - 4.375
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625 - 2.875	2.625 -2.875	2.625- 2.875
32-36 gas oil, straw	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
16-20 fuel oil (in bbls.)	$0.80	$0.80 - 0.85	$0.80 - 0.85
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 - 3.25	3.00 - 3.25	3.00 - 3.25
32-36 gas oil	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
28-32 gas oil	2.75	2.75	2.75
Road Oil	$1.15	$1.15	$1.15
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.70 -$0.85	$0.70 -$0.85	$0.70 -$0.85
14-18 Bunker oil (in bbls.)	$0.80 -$1.00	$0.80 -$1.00	$0.80 -$1.00
30 34 gas oil (in bbls.)	$0.95 -$1.10	$0.95 -$1.10	$0.95 -$1.10
27 Plus Diesel oil (in bbls.)	$0.90 -$1.00	$0.90 -$1.00	$0.90 -$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ⅛c to ¾c per pound less.)

Snow White	8.25	8.25 - 8.375	8.00 - 8.25
Lily White	7.25	7.25 - 7.375	7.00 - 7.25
Cream White	6.25	6.25 - 6.375	6.00 - 6.25
Blonde	††4.50	‡	‡
Light Amber	3.25 - 3.50	3.25 - 3.375	3.00 - 3.25
Amber	3.00 - 3.125	3.00 - 3.125	3.00
Red	2.75	2.75 - 2.875	2.75
Green No 5 color	‡	‡	‡

‡No refiner quoting.

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

Lump	$4.50 - 5.00	$4.50 - 5.00	$4.50 -$5.00
Still run	$2.75 - 3.00	2.75 - 3.00	$2.75 -$3.00
Breeze	$1.75 - 2.00	$1.75 - 2.00	$1.75 -$2.00

**Represents Both Sales and Quotations

Higher Gasoline Prices Indicate California Price War Nears End

Staff Special

LOS ANGELES, June 23

TWO Independent refiners June 2 were refusing to quote gasoline in tank cars at less than 12 cents against offerings of 8 cents earlier this week. Their action confirmed rumors that the recent price war was near an end.

It is said the seven major companies here are disposed to quit all efforts to get gallonage by price cutting and granting other inducements to dealers. There were indications today a cut in service station prices would not be necessary to clarify the California price situation.

Independent service stations were being offered contracts at 8 to 8.50 cents under the posted service station price of 20.50 cents in southern California. As a result of this fight for gallonage, plenty of motor fuel is for sale in Los Angeles area at 14 cents a gallon up to 6 for $1. One station this week was offering gasoline—and selling lots of it—at 8 gallons for $1. It was reported this station was paying 11.50 tax paid for its supply dumped into the tanks.

All major companies this week were asking 8 cents or better for U. S. Motor gasoline for export, although orders were placed last week in New York for two cargoes to move shortly from California to the east coast at 7.75 cents. Some of the companies still feel that they can get 8.50 cents by waiting two or three weeks.

It is understood the low price natural gasoline which has been on the market, will be contracted for. This will prevent further dumping. Last week a few spot sales were made at 5.50 cents, but this week most of the product was moving at 6 to 6.50 cents a gallon.

Kerosene tank car price is holding around 5.50 to 6 cents.

Correction

Gasoline prices at Vancouver, B. C., have been in error since April 1, when it was reported that a 2 cent increase was being made in the gasoline tax, raising it to 5 cents. Tax in British Columbia was not raised, it remaining 3 cents. Prices are corrected in the accompanying tank wagon table to conform to the 3 cent tax.

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New Jersey—S.s. price gasoline reduced 3 cents, Norfolk, to 21 cents, **April 26.**

Standard of Indiana—T.w. and s.s. prices gasoline advanced 3 cents, Mankato, to 17.1 cents and 19.1 cents respectively, including 2 cent state tax, **June 19.**

Magnolia Petroleum—T.w. and s.s. prices gasoline advanced to 13 cents and 16 cents respectively, exclusive of state tax, at common points in Texas, and to 14 cents and 17 cents, exclusive of tax, in differential territory points, **June 21.** El Paso is only division point in differential territory among cities published in tank wagon table of NATIONAL PETROLEUM NEWS. Prices there were unchanged. Common points advanced were Dallas and Houston, which went up 2 cents, and Fort Worth and San Antonio, which went up 1c. S.s. prices up 2c at Dallas and Houston, to 20c and up 1c at Fort Worth and San Antonio, to 19c.

T.w. and s.s. gasoline cut 2c, Fort

(*Continued on Page* 120)

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for 1927, 1926, 1925, 1924 arranged for quick reference)

These Prices in Effect June 25, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline				Oil
		Total			
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	14
Baltimore, Md.	16	4	20	23	12
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	14
Danville, Va.	16	5	21	*	14
Norfolk, Va.	15	5	20	20	14
Richmond, Va.	16	5	21	24	14
Roanoke, Va.	16	5	21	24	14
Petersburg, Va.	16	5	21	24	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	23	14
Parkersburg, W. Va.	16	4	20	23	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	23	14
Mt. Airy, N. C.	16	4	20	23	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	16	5	21	24	14
Columbia, S. C.	16	5	21	24	14

*Dealers set own prices. S. O. New Jersey does not operate station.

T.w. and s.s. prices gasoline reduced 1 cent, Norfolk, both to 20 cents, including 5 cents state tax, June 25.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	17	0	17	*19	15
Albany, N. Y.	17	0	17	20	15
Buffalo, N. Y.	17	0	17	19	15
Rochester, N. Y.	17	0	17	20	15
Syracuse, N. Y.	17	0	17	19	15
Boston, Mass.	17	0	17	19	15
Augusta, Me.	17	4	21	23	15
Manchester, N. H.	17	4	21	23	15
Burlington, Vt.	17	3	20	22	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	*21	14
Philadelphia, Pa.	16	*	16	*21	14
Allentown, Pa.	16	*	16	*21	14
Erie, Pa.	16	*	16	*21	14
Scranton, Pa.	16	*	16	*21	14
Altoona, Pa.	16	*	16	*21	14
Dover, Del.	16	3	19	21	14
Wilmington, Del.	16	3	19	21	14
Providence, R. I.	17	2	19	21	15
Boston, Mass.	17	0	17	19	15
Springfield, Mass.	17	0	17	19	15
Worcester, Mass.	17	0	17	19	15
Hartford, Conn.	17	2	19	21	14
New Haven, Conn.	17	2	19	21	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Ashland, Ky.	15	5	20	22	15.5
Catlettsburg, Ky.	15	5	20	22	15.5
Lexington, Ky.	14	5	19	21	15.5
Louisville, Ky.	14	5	19	21	14
Covington, Ky.	15	5	20	21	15.5
Clarksdale, Miss.	15	4	19	21	14.5
Gulfport, Miss.	††16.5	4	††20.5	22.5	14
Jackson, Miss.	15	4	19	21	14.5
Natchez, Miss.	14.5	4	18.5	20.5	14
Vicksburg, Miss.	14.5	4	18.5	20.5	14
Birmingham, Ala.	17	4	21	23	16
Mobile, Ala.	17	4	21	23	15
Montgomery, Ala.*	18	4	22	24	16.5
Atlanta, Ga.	17	4	21	23	†16.5
Augusta, Ga.	17	4	21	23	†16.5
Macon, Ga.	17	4	21	23	†16.5
Savannah, Ga.	15	4	19	19	14.5
Jacksonville, Fla.	15	5	20	22	13.5
Miami, Fla.	17	5	22	24	15.5
Tampa, Fla.	15	5	20	22	13.5
Pensacola, Fla.	**16	5	**21	23	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline				Oil
		Total			
	T.W.	Tax	T.W.	S.S.	T.W.
Chicago, Ill.	14	0	14	16	12
Decatur, Ill.	14.2	0	14.2	16.2	12.1
E. St. Louis, Ill.	13.1	0	13.1	15.35	11.2
Joliet, Ill.	14.4	0	14.4	16.4	12.3
Peoria, Ill.	14.2	0	14.2	16.2	12.1
Quincy, Ill.	14.2	0	14.2	16.2	11.9
Indianapolis, Ind.	14.2	3	17.2	19.2	13.2
Evansville, Ind.	14	3	17	19	13
South Bend, Ind.	14.4	3	17.4	19.4	13.4
Detroit, Mich.	14.8	3	17.8	19.8	13.7
Grand Rapids, Mich.	14.7	3	17.7	19.7	13.6
Saginaw, Mich.	14.9	3	17.9	19.9	13.8
Green Bay, Wis.	14.6	2	16.6	18.6	12.4
Madison, Wis.	14.3	2	16.3	18.3	12.1
Milwaukee, Wis.	14.1	2	16.1	18.1	11.9
La Crosse, Wis.	15.2	2	17.2	19.2	13
Minneapolis, Minn.	15.2	2	17.2	19.2	12.9
Duluth, Minn.	15.5	2	17.5	19.5	12.9
Mankato, Minn.	15.1	2	17.1	19.1	12.7
Des Moines, Ia.	14.5	3	17.5	19.5	12.3
Davenport, Ia.	14.5	3	17.5	19.5	12.3
Sioux City, Ia.	14.1	3	17.1	17	11.9
Mason City, Ia.	14.5	3	17.5	19.5	12.3
St. Louis, Mo.	*13.6	2	15.6	17.9	11.3
Kansas City, Mo.	†14.9	2	16.9	18.9	10.6
St. Joseph, Mo.	†14.5	2	16.5	18.5	11.2
Fargo, N. D.	16.9	2	18.9	20.9	14.9
Grand Forks, N. D.	17.2	2	19.2	21.2	15.2
Minot, N. D.	16.9	2	18.9	20.9	14.9
Pierre, S. D.	15.5	4	19.5	21.5	13.9
Huron, S. D.	15.5	4	19.5	21.5	13.9
Wichita, Kans.	12.8	2	14.8	16.8	10.8
Bartlesville, Okla.	12.5	3	15.5	17.5	10.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline outside the city of Chicago is 1c for 50 gals. or more at one delivery; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

In Chicago, above discounts apply, except the 1c for 50 gal. dumps.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month, or 2400 gals. per year.

Discount on kerosene is 1c on 50 gal. dumps throughout territory.

*Includes city tax of ½c.

†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	14	3	17	20	14.5
Pueblo, Colo.	14	3	17	20	14.5
Grand Junction, Colo.	17.5	3	20.5	23.5	18
Casper, Wyo.	15	3	18	20	13
Cheyenne, Wyo.	16	3	19	21	14.5
Butte, Mont.	19.5	3	22.5	22.5	19
Helena, Mont.	19.5	3	22.5	24.5	19
Salt Lake City, Utah	17.5	3½	21	23	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Alburquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	15	5	20	22	12
Alexandria, La.	14	2	16	18	†14
Baton Rouge, La.	13	2	15	17	†12.5
Lake Charles, La.	14.5	2	16.5	18.5	†14
New Orleans, La.	*14.5	2	*16.5	*18.5	†14
Shreveport, La.	14.5	2	16.5	18.5	†13
Lafayette, La.	14	2	16	18	†13.5
Bristol, Tenn.	17	3	20	22	14
Chattanooga, Tenn.	16.5	3	19.5	21.5	15
Knoxville, Tenn.	17	3	20	22	15
Nashville, Tenn.	16	3	19	21	15
Memphis, Tenn.	15	3	18	20	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline				Oil
		Total			
	T.W.	Tax	T.W.	S.S.	T.W.
All Ohio points	14	3	17	19	14

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	18.25	12.25
McCook	15.75	2	17.75	19.75	13.75
Norfolk	14.75	2	16.75	18.75	12.75
North Platte	15.75	2	17.75	19.50	13.50
Scottsbluff	15.75	2	17.75	19.75	13.25

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	11
Oklahoma City	14	3	17	19	11
Tulsa, Okla.	13	3	16	18	11
Fort Smith, Ark.*	13	*3	16	18	12
Little Rock, Ark.	15	5	20	22	12
Texarkana, Ark.*	13.5	*3	16.5	20.5	12
Dallas, Tex.	13	3	16	20	11
Fort Worth, Tex.	13	3	16	19	11
Houston, Tex.	13	3	16	20	15
San Antonio, Tex.	13	3	16	19	10
El Paso, Tex.	14	3	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		19	....

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline				Oil
		Total			
	T.W.	Tax	T.W.	S.S.	T.W.
Toronto	19.5	3	22.5	26	21
Ottawa	19.5	3	22.5	26	21
Cochrane	24.5	3	27.5	36	26
Ft. William	22.5	3	25.5	29	22.5

MANITOBA

Winnipeg	21.5	3	24.5	28	21.5

SASKATCHEWAN

Regina	25.5	3	28.5	33	25.5

ALBERTA

Edmonton	26.5	3	29.5	33	26.5
Calgary	22.5	3	25.5	29	22.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	22

QUEBEC

Montreal	20.5	5	25.5	29	21
Quebec City	22.5	5	27.5	33	23
Three Rivers	22.5	5	27.5	31	23

NEW BRUNSWICK

St. John	22.5	3	25.5	30	22
Moncton	22.5	3	25.5	30	22

NOVA SCOTIA

Halifax	22.5	5	27.5	32	22
Sydney	22.5	5	27.5	32	22

PRINCE EDWARD ISLAND

Charlottetown	22.5	5	27.5	31	22

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c; Indiana, 2/25c; Kansas, 1/50c; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c; Missouri, 1/50c; Nebraska, 3/50 to 1/2c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 4/25c; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Over Month Quotations May Be Discontinued on East Coast

Staff Special
NEW YORK, June 23

INCLEMENT weather with an accompanying lull in spot demand from the jobbing trade this week had little effect on the healthy position of eastern gasoline markets. Prices in most districts remained at last week's levels. Where changes were noted, the trend was higher rather than lower.

The question of prices for July gasoline appeared as a subject of considerable interest. June 20, the date when market leaders usually announce prices at which they will take on business for July, is past. Several companies indicated they would pursue a strictly spot market policy at least until the middle of next week; some reported they would likely be ready to announce prices June 25, whereas still others said they were discontinuing quoting on an over-the-month basis.

The latter was the action taken by one large company, usually considered by the trade as "the market leader." The company, coincident with its complete withdrawal from the spot market, announced it was seriously considering narrowing its delivery period for futures from 30 to 15 days.

Judging from reports received from a number of important sellers this week, jobbers are anxious to obtain their July requirements. In view of the course the market has pursued since the first of the year, it has been felt a further advance in prices was imminent, with peak demand yet to come. Inquiries for large quantities over July were received and in most instances jobbers were bidding current spot prices.

One large jobber was seeking 50 cars of California gasoline, offering 10.75 cents, the price at which up until the middle of this week spot cars could be purchased. The only seller of this class of goods quoting this price advanced his quotation to 11 cents June 21. To June 23 the business had not been placed.

A careful survey of the market revealed that reports circulated among the trade early in the week to the effect that July business was being taken on at current spot prices were greatly exaggerated. Only a few actual sales, negligible in total volume, could be found. The largest was a 10-car lot of U. S. Motor sold at 10.75 cents. The seller said he later regretted selling at this price, even to a favored customer.

Spot prices in New York harbor showed further improvement with the elimination of the bulk of distress U. S. Motor. Sales were made intermittently all week by resale agents at 10.25 cents and 10.50 cents against 10.75 cents quoted by most major companies. Resale agents were quoting this price June 23 although reports to the contrary were received from buyers.

Improvement in the retail price situation in upstate New York also was noted. The sales manager of a large tank car distributing company, after a business trip through the Albany, Rochester and Syracuse districts, said it was impossible for the motorist who buys in 10 to 20-gallon lots to beat the prices posted at service stations. This, he said, was a comparatively easy thing to do a short time ago.

Tank car markets both north and south of New York were without material change. Delivered prices for U. S. Motor gasoline in the Boston and Providence districts remained at 12.50 cents, minimum, against 11.25 cents, f.o.b. shipping point. Both U. S. Motor and California goods were quoted at 10.75 cents, f.o.b. terminal at Baltimore. U. S. Motor was still available at 10 cents at Savannah and Jacksonville, although most sellers were quoting 10.25 cents.

There was little interest in burning oil markets. Kerosene, furnace oil and gas oil prices remained the same.

Heavy Buying Raises Gasoline Export Price at Gulf

Staff Special
NEW YORK, June 23

THERE was no let up in the demand for gasoline and kerosene from French buyers at the Gulf this week. Purchases were slightly in excess of those made last week. New highs were recorded for all grades of gasoline, but prices of kerosene were a shade lower.

The activity was headed by the leading Independent company in the French market. This company purchased three cargoes last week totalling approximately 170,000 barrels of light oil. It entered the market again on June 18, purchasing 140,000 barrels more. Other buyers swelled this week's total sales to 190,000 barrels.

Prices at which the bulk of the business was closed were particularly pleasing to the trade. The 64-66, 375 end point gasoline sold mostly at 9.75 cents last week. The same price ruled for one cargo this week; a second brought 0.125-cent more, and a third was placed at 9.8125 cents.

U. S. Motor gasoline sold in one instance at 9 cents, although the quantity of this grade was negligible in comparison to the 64-66 in the cargo. One cargo which included approximately 20,000 barrels of U. S. Motor, brought 9.125 cents. Both prices were higher than the last paid price for U. S. Motor.

As has been customary in the past, kerosene prices quoted for 20,000 barrels, or larger quantities, were shaded for small lots in mixed cargoes. Seventy-five hundred barrels of prime white kerosene sold at 6.125 cents in a cargo which included 42,500 barrels of 64-66, 375 end point gasoline at 9.875 cents. This was a reduction of 0.125-cent for the kerosene whereas 9.875 cents was 0.125-cent higher than the previously paid price for 64-66.

One large inquiry from France was still hanging fire at the close of the week. Approximately 60,000 barrels of U. S. Motor and 64-66, 375 end point gasoline were being sought for late September or early October loading. Only one supplier was said to be quoting for this business. Closing is expected early next week.

Suppliers ideas of prices were generally higher as the week ended. Several have definitely withdrawn from the market. One company reported it would not be able to make any further commitments until September at the earliest. Most companies quoted 10 cents for 64-66, 375 end point gasoline and 9.25 cents for U. S. Motor; 7.25 cents for water white kerosene and 6.25 cents for prime white.

Only slight interest was displayed in the heavy oil market.

A cargo of heavy Panuco crude sold Friday at $1.00 a barrel—2 cents less than the last paid price. Most companies quoted $1.15 a barrel for bunkers in the Tampico district.

Correction

Due to typographical error, price of Grade C bunker oil under Mexican crude and bunker oils in Gulf Export market on page 127 of June 20 issue of NATIONAL PETROLEUM NEWS, under date of June 4 was shown as $1.92 to $1.15. The $1.02 is the low price of heavy Panuco crude, which should have been $1.02 to $1.05 on June 4. Price of Grade C bunker oil should have been $1.15 flat.

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, represent majority of quotations and sales.)

	June 25	June 18	June 11
U.S. Motor gasoline, New York harbor	10.75	10.75	10.25 –10.75
U.S. Motor gasoline, Philadelphia	10.50 –10.75	10.50 –10.75	10.25 –10.75
U.S. Motor gasoline, Boston district	*11.25	*11.25	*11.25
U.S. Motor gasoline, Providence district	*11.25	*11.25	*11.25
U.S. Motor gasoline, Baltimore	10.75	10.75	10.75
U.S. Motor gasoline, Norfolk	10.75	10.75	10.75
U.S. Motor gasoline, Charleston	10.50	10.50	10.50
U.S. Motor gasoline, Savannah	10.00 –10.25	10.00 –10.25	10.00 –10.25
U.S. Motor gasoline, Jacksonville	10.00 –10.25	10.00 –10.25	10.00 –10.25
California U.S. Motor gasoline, New York Harbor	11.00	10.75 –11.00	10.75 –11.00
California U.S. Motor gasoline, Baltimore	10.75	10.75	10.75
California U.S. Motor gasoline, Philadelphia	10.50 –10.75	10.50 –10.75	10.50 –10.75
Water white kerosene, New York Harbor	8.00	8.00	7.50 – 8.00
Water white kerosene, Philadelphia	7.75 – 8.00	7.75 – 8.00	7.50 – 7.75
Water white kerosene, Baltimore	8.00	8.00	8.00
28-34 gas oil, New York harbor	5.00 – 5.25	5.00 – 5.25	4.75 – 5.00
28-34 gas oil, Boston district	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
36-40 furnace oil, New York harbor	6.00	6.00	5.75 – 6.00
36-40 furnace oil, Boston district	6.25 – 6.50	6.25 – 6.50	6.00 – 6.50
Grade C bunker oil, New York harbor	$1.25	$1.25	$1.25
Grade C bunker oil, Boston district	$1.25	$1.25	$1.25
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.
*Minimum of 12.50c delivered.

MEDICINAL OILS

Russian 885-890 s.g., 325-330 vis	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	June 25	June 18	June 11
U. S. Motor gasoline	25.90	25.90	25.40
43-45 150 w.w. kerosene	18.40	18.40	18.40
42-44, 110 s.w. kerosene	17.40	17.40	17.40
CYLINDER OILS			
Bright stock, dark	40.00	38.00 –40.00	36.50 –37.50
600 D filtered	30.00 –32.00	30.00 –32.00	30.00 –32.00
600 Warren E filtered	24.50 –25.00	24.00 –25.00	24.00 –25.00
600 s.r. unfiltered	18.50 –20.00	18.00 –19.00	17.25 –18.00
650 s.r. unfiltered	21.00 –22.00	20.00 –22.00	19.50 –21.00
600 flash s.r.	23.00 –26.00	23.00 –26.00	22.00 –25.00
630 flash, s.r.	34.00 –36.00	34.00 –36.00	33.00 –35.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50	19.50	19.50
250 vis. No. 6 color	18.50	18.50	18.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3½ color	19.50	19.50	19.50
100 vis. No. 2¼ color	15.25	15.25	15.25
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	34.50	34.50	34.50
500 vis. No. 6½ color	32.50	32.50	32.50
400 vis. No. 7¼ color	30.50	30.50	30.50
300 vis. No. 6 color	29.50	29.50	29.50
200 vis. No. 3¼ color	23.00	23.00	23.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)
WHITE CRUDE SCALE (In barrels)

	June 25	June 18	June 11
122-124 A.m.p.	4.375– 4.50	4.25 – 4.50	4.25 – 4.50
124-126 A.m.p.	4.375– 4.50	4.25 – 4.50	4.25 – 4.50
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	4.875– 5.125	4.875– 5.00	4.875– 5.00
125-127 A.m.p.	4.875– 5.125	4.875– 5.00	4.875– 5.00
128-130 A.m.p.	5.25 – 5.375	5.125– 5.25	5.125– 5.25
130-132 A.m.p.	*6.00	5.25 – 5.50	5.25 – 5.50
133-135 A.m.p.	6.50	*6.00 – 6.50	*6.00 – 6.50
135-137 A.m.p.	7.00	*6.75 – 7.00	*6.75 – 7.00
YELLOW CRUDE SCALE			
124-126 A.m.p.	4.125– 4.25	4.125	4.125– 4.25

***Prices nominal.**

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	June 25	June 18	June 11
U.S. Motor	9.125– 9.25	9.00 – 9.25	8.875– 9.00
60-62, 400 e.p.	9.375	9.25	9.00
61-63, 390 e.p.	9.625	9.50	9.25
64-66, 375 e.p.	9.875–10.00	9.75	9.50
U. S. Motor, cases (cargoes)	$1.75	$1.75	$1.75
64-66, cases (cargoes)	$1.85	$1.85	$1.85

***Sales only.**

KEROSENE			
44 water white	7.25	7.25	7.50
41-43 prime white	6.25	6.25	6.50
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875– 4.00	3.875– 4.00	3.875– 4.00
*30-32 translucent gas oil	4.00	4.00	4.00
Grade C bunker oil	$0.95 – 1.10	$0.95 – 1.10	$0.95 – 1.10
Grade C bunker oil, cargoes	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0.90

***Less than ½ of 1% sulfur.**

MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$1.00 –$1.05	$1.02 –$1.05	$1.02 –$1.05
Grade C bunker oil, for bunkering purposes, taxes paid	$1.15	$1.15	$1.15

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.; cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	6.00	6.00	6.00
200 vis. No. 3 unfiltered pale	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
300 vis. No. 3 unfiltered pale	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
500 vis. No. 3½ unfiltered pale	11.50 –12.00	11.50 –12.00	11.50 –12.00
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200 vis. No. 5-6 red oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 vis. No. 5-6 red oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
500 vis. No. 5-6 red oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750 vis. No. 5-6 red oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
1200 vis. No. 5-6 red oil	14.50 –15.50	14.50 –15.50	14.50 –15.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	June 25	June 18	June 11
Gasoline, U. S. Motor, 53-55 Gravity	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
Gasoline, U. S. Motor, blends and special cuts	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
Gas Oil, 30-34, per barrel	$1.10 –$1.20	$1.10 –$1.20	$1.10 –$1.20
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18, per barrel	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.95	$1.75 –$1.95
Kerosene, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926-1927 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.05
Bradford District Oil in National Transit Lines (Bradford District)	3.05
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	2.90
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	2.90
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	2.85
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.65
Keister Grade in National Transit Lines (Butler Co.)	1.20
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.55
Corning, O. heavy grade	1.45
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.55
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$1.57	Plymouth	$1.23
Lima	1.55	West Kentucky	1.33
Waterloo	1.20	*Canadian Petro.	1.95
Indiana	1.32	*Oil Springs	2.02
Princeton	1.50	*Posted by Imperial Oil Ltd.	
Illinois	1.50		

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Feb. 21, 1928

28-28.9	$0.96	41-41.9	$1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76
40-40.9	1.40		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Effective Feb. 21, 1928

Below 25	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

Humble Prices (Cont'd)

28-28.9	$0.96	37-37.9	$1.31
29-29.9	1.01	38-38.9	1.34
30-30.9	1.06	39-39.9	1.37
31-31.9	1.11	40-40.9	1.40
32-32.9	1.16	41-41.9	1.43
33-33.9	1.19	42-42.9	1.46
34-34.9	1.22	43-43.9	1.49
35-35.9	1.25	44 and above	1.52
36-36.9	1.28		
Mirando, Tex			$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Feb. 21, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades, unchanged from Feb. 16:

Below 30	$0.75
30-30.9	0.90
31-31.9	1.05
Glasscock and Howard Counties	$0.60
Chalkfield (Howard Co.)	$0.80
Iatan district	$0.93
Corsicana heavy	$1.00

Carter Oil Co.

(Oklahoma and Kansas)

Feb. 21, same schedule as Prairie plus these grades:

24-24.9	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Feb. 21, 1928

Hutchinson and Carson Counties:

Below 31	$0.60	38-38.9	$0.88
31-31.9	0.65	39-39.9	0.91
32-32.9	0.70	40-40.9	0.94
33-33.9	0.73	41-41.9	0.97
34-34.9	0.76	42-42.9	1.00
35-35.9	0.79	43-43.9	1.03
36-36.9	0.82	44 and above	1.06
37-37.9	0.85		

Wheeler County:

Below 29	$0.60	37-37.9	$0.95
29-29.9	0.65	38-38.9	0.98
30-30.9	0.70	39-39.9	1.01
31-31.9	0.75	40-40.9	1.04
32-32.9	0.80	41-41.9	1.07
33-33.9	0.83	42-42.9	1.10
34-34.9	0.86	43-43.9	1.13
35-35.9	0.89	44 and above	1.16
36-36.9	0.92		

Gray County:

Below 27	$0.60	36-36.9	$1.02
27-27.9	0.65	37-37.9	1.05
28-28.9	0.70	38-38.9	1.08
29-29.9	0.75	39-39.9	1.11
30-30.9	0.80	40-40.9	1.14
31-31.9	0.85	41-41.9	1.17
32-32.9	0.90	42-42.9	1.20
33-33.9	0.93	43-43.9	1.23
34-34.9	0.96	44 and above	1.26
35-35.9	0.99		

WEST TEXAS

Humble Oil & Refining Co.

Effective Aug. 23, 1927

Crane, Upton, Crockett and Pecos Counties	$0.60

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective Feb. 21, 1928

Below 28	$0.91	40-40.9	$1.40
28-28.9	0.96	41-41.9	1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76

Cotton Valley, below 36, $0.75. Rest of Cotton Valley schedule, beginning with 36-36.9 at $1.28, same as Caddo, Homer, etc.

Smackover, below 24			$0.75
do	24 and above		.90
Bellevue			1.25
*Urania, La.			.75
†East El Dorado			1.00

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La. Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia: on Feb. 6 by La. Oil Refg. Corp.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp.

Below 28	$0.85	30-30.9	$0.91
28-28.9	0.87	31-31.9	0.93
29-29.9	0.89	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

Week's Price Changes Tank Wagon Markets

(*Continued from Page* 116)

Smith, to 16c and 18c respectively, including 3c Texas tax, **June 19.**

* * *

Kerosene Changes

Standard of Louisiana—Kerosene price advanced 1 cent, Lafayette, to 13.5 cents t.w., **June 20.**

Takes Over Retail Market Business

LOS ANGELES, June 23.—United States Refining Co., affiliated with the Exeter Oil Co., has recently taken over the business of Empire Oil & Supply Co. and Peerless Gasoline Co., retail distributing companies. Exeter has production at Long Beach, Torrance and in Ventura county, in addition to natural gasoline supply.

Carl von Bibra is president of Exeter and is well known in refining, marketing and natural gasoline circles in California.

Ohio Gasoline Market

CLEVELAND, June 25.—Standard Oil Co. of Ohio is quoting U. S. Motor gasoline at 11.50 cents delivered in Ohio, tax to be added. This price is for spot and July shipments.

Mid-Continent Gasoline Prices Rise

(*Continued from page* 113)

June 23 were moving mostly at 62.5 to 65 cents a barrel June 23 although there are reports of sales both above and below this range. A broker said he had bought on June 22 some material which he had shipped on a Group 3 rate and that he was able to sell it at 57 cents at a profit. From other sources came information of sales below the 60-cent market, Group 3, although Oklahoma refiners refused to lower their price below 62.5 cents. In Texas 24-26 gravity fuel was moving June 23 at 60 cents after having been 60 to 65 cents all week. Elsewhere prices held up in spite of little demand.

Neutral Oils, Cylinder Stocks, Wax

Oklahoma refiners report that prices of neutral oils and cylinder stocks were unchanged. They say that demand continues good and none is having trouble in moving goods. One refiner said he found a better demand for bright stocks but he was unable to obtain higher prices.

Wax continues to be scarce with virtually all refiners sold up. The general idea of the market is 4.25 cents. One refiner said June 23 he expected to sell 60 tons at 4.25 cents for over July shipment.

Purchasers, in All Fields (in Effect June 25)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A.....$1.20	*Grades B.....$1.15
‡Grades B (light crude):	
35-35.9.....$1.37	38-38.9.....$1.43
36-36.9..... 1.39	39-39.9..... 1.45
37-37.9..... 1.41	40 and above... 1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Feb. 21, 1928)

‡Salt Creek below 29	$0.96
" " 29-29.9	1.01
" " 30-30.9	1.06
" " 31-31.9	1.11
" " 32-32.9	1.16
" " 33-33.9	1.19
" " 34-34.9	1.22
" " 35-35.9	1.25
" " 36-36.9	1.28
" " 37 and above	1.31
Elk Basin	1.33
Grass Creek light	1.33
Big Muddy	$1.25
Lance Creek	1.33
Rock Creek	1.25
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.33
‡Cat Creek, Mont.	1.33
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.38
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	....	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	.85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	.85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	....	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	June 25	June 18
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, ...cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars.....cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, ...cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.....	$0.90	$0.90
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton.....	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.....	$18.50	$18.50
Sulfur, flowers of.....cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks.....lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	8.75	8.75

Compounders' Supplies

	June 25	June 18
Vegetable Oils		
Linseed carloads, spot....lb.	10.20	10.20
Tanks, spot.....	9.40	9.40
Soya Bean, Tanks, coast, lb.	9.50-9.75	9.50-9.75
Oleic Acid		
Distilled, tanks.....lb.	9.00	9.00
Distilled, bbls.....lb.	9.75	9.75
Saponified, tanks.....lb.	9.25	9.25
Saponified, bbls.....lb.	10.00	10.00
Lard Oils		
Prime Winter Strained....lb.	16.25	16.25
Extra Winter Strained...lb.	13.25	13.25
Extra.....lb.	12.50	12.75
Extra No. 1.....lb.	12.25	12.25
No. 1.....lb.	11.50	11.75
No. 2.....lb.	11.25	11.375
Tallow oil.....lb.	11.375	11.625
Neatsfoot Oil		
Pure, bbls.....lb.	15.25	15.25
Extra, bbls.....lb.	12.50	12.50
No. 1 bbls.....lb.	11.75	12.00
Cold Pressed.....lb.	18.50	18.75
Fish Oils		
Menhaden Oil		
Light Pressed ..... gal.	63-65	63-65
Light Pressed, tank cars, N. Y. .....gal.	54-56	54-56
White bleached.....gal.	70-71	70-71
Yellow bleached.....gal.	68-69	68-69
Whale, extra winter bleached, ...gal.	82-84	82-84
Naval Stores		
Steam distilled turpentine, N. Y.....gal.	53	52
Steam distilled turpentine, Savannah.....gal.	49	48
Gum turpentine, N. Y....gal.	58	58
Gum terpentine, f.o.b. cars Savannah.....gal.	54	54
Wood Rosin F, N. Y.....bbl.	$8.05	$7.80
Wood Rosin F, Savn'h..bbl.	$7.25	$7.00
Gum Rosin B, N. Y.....bbl.	$8.15	$8.55
Gum Rosin B, f.o.b. cars Savannah ..... bbl.	$7.40	$7.80
Rosin oil, pure.....gal.	56	55
Rosin oil, compounded...gal.	45	45
Pine Tar		
Kiln burnt.....bbl.	$12.50-14.00	$12.50-14.00
Retort.....bbl.	$13.50-15.50	$13.50-15.50
Alcohol		
Denatured, Formula 5, in bbls., per gal.....	51-55	51-55

*Nominal.

Chicago Gasoline Demand Holds Up in Face of Bad Weather

Staff Special
CHICAGO, June 23

GASOLINE retained its dominant position in the Chicago market this week. Demand continued to hold up in most quarters, although most of the trade said inclement weather over the territory had retarded consumption.

Practically all sellers advanced their prices .125 cent and some went up .25 cent on U. S. Motor gasoline. It sold mostly at 7.75 to 7.875 cents until June 23 when practically no goods could be obtained under 7.875 cents. Several of the trade reported sales at 8 cents.

Jobbers were inquiring for gasoline to be shipped over July. Most refiners and marketers reported they would not quote over July until later this month. Practically all July quotations on U. S. Motor were between 8 and 8.25 cents, although no contracts were reported closed.

Shaffer Oil & Refining Co. again was awarded the Chicago post office gasoline contract, according to current reports. This contract calls for approximately 225,000 gallons of U. S. Motor specification gasoline to be delivered over the third quarter of 1928.

The contract was awarded on a basis of the average spot tank car price on date of shipment, plus the usual handling charge of .50 cent. A maximum price of 8.24 cents, f.o.b. Group 3 was specified; discount terms 1 per cent 10 days.

The domestic demand for higher gravity gasolines was only fair. Export buying in Texas and Oklahoma, however, was a strong enough factor to hold the market on an even keel. Prices were advanced approximately .125 cent in line with U. S. Motor.

The 60-62, 437 e. p. grade sold at 7.875 to 8 cents most of the week after opening at 7.875 cents flat. Sales of 60-62, 400 e. p. were mostly at 8 to 8.125 cents until June 23, when practically no goods was available under 8.125 cents. The 64-66, 375 e. p. grade sold all week at 8.25 to 8.375 cents.

Kerosene demand was light and prices were reduced fractionally by most sellers. The 41-43 w. w. grade opened at 4.75 to 5 cents and dropped to 4.625 to 4.75 cents by June 20 and ended the week at that figure. A few sales were reported as low as 4.50 cents. One or two refiners said they were still well sold up on kerosene and were quoting higher prices.

All the heavier oils were quiet this week. Distillate and gas oil prices generally were unchanged. Goods was more freely offered. Fuel oils were easier to get. Prices gradually were slipping. Competition from west Texas has been a factor on the heavier products. Prices varied greatly on most grades, according to cold test and sulfur content.

Straw distillate, 38-40, sold at 3 to 3.125 cents all week. Gas oil prices were unchanged. Ordinary 32-36 was selling at 2.50 to 2.625 cents; 32-36 dark zero at 2.625 to 2.75 cents; and 32-36 straw zero at 2.75 to 2.875 cents.

Fuel oil 28-32, moved at $0.85 to $0.90 throughout the week. The 24-26 and 22-26 grades opened at $0.725 to $0.775 and sold at $0.725 to $0.75 from June 19 to 23 when it was $0.70 to $0.75. Sales of 18-22 fuel were made at $0.625 to $0.725 June 23 after moving at $0.65 to $0.725 previously. Smackover quotations and sales remained unchanged at $0.80 to $0.85.

Frequent periods of rainfall throughout Standard of Indiana territory next week, temperature average near seasonal normal, is the official report of the Chicago weather bureau.

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Venezuelan Crude Price Low

NEW YORK, June 23.—Demand for spot cargoes of Venezuelan crude oil continued at a minimum this week. Most of this oil coming into the States is under contract. Buyers reported receiving firm offers of $0.91 a barrel, f.o.b. deepwater, Lake Maracaibo region, for spot cargoes. Ship owners were asking around 17 to 18 cents a barrel for dirty tankage.

Penna. Prices Generally Steady This Week

CLEVELAND, June 23.—Prices in western Pennsylvania markets this week generally were steady. Steam refined, 650, advanced 0.50 to 1 cent June 23. Bright stocks were unchanged at 35 cents for light and 33 cents for dark. U. S. Motor gasoline continued to be quoted at 10.50 to 11 cents.

Jobbers were entering market for July gasoline. One refiner reported buyers were more interested in July requirements than they were for June gasoline. As yet U. S. Motor gasoline has not been quoted for next month.

Top prices quoted for viscous neutrals were down, with lower prices in range unchanged. Wax for July has been quoted at 4.50 to 4.75 cents.

Wax Prices Stiffen But Buying Lags

NEW YORK, June 23.—A continuance of last week's lull in foreign buying prevailed in the New York wax market. Despite the inactivity of buyers for nearby deliveries, the price range for white crude scale narrowed in favor of the selling trade, and prices for most grades of fully refined wax moved up 0.125 to 0.25-cent.

The excellent position of stocks at refineries and the large volume of orders refiners now have on their books were reasons offered by several of the trade to explain the higher prices. Bureau of Mines' reports recently showed a reduction of approximately 15,000 tons in stocks at refineries the past two months. Virtually every important seller reported being sold up for June this week. One large company was said to be two months behind on shipments from its Atlantic coast refinery and further behind on shipments from its Gulf coast plant.

There was considerable speculation among the trade as to the course of wax markets in the next month or two, a question that greatly over-

(*Continued on Page* 126)

OIL STOCKS AND FINANCES

National Petroleum News

Richfield Concludes Purchase Of Pan American Western

Staff Special

LOS ANGELES, June 23

OFFICIAL announcement was made this week that Richfield Oil Co. had concluded negotiations for the purchase of all the properties of the Pan American Western Petroleum Co. from Petroleum Securities Co. and E. L. Doheny, the purchase including all of the Class A stock and a substantial block of Class B stock. The A stock carries voting rights.

The deal was handled through Blair & Co. Announcement was made by J. A. Talbot, president of Richfield, it being stated that Richfield in near future would submit a proposal for the exchange of its shares for the balance of the outstanding B shares.

The deal means the retirement of Mr. Doheny from the refining and marketing end of the oil business in California, but he will continue through his personally owned companies to produce oil, the deal including a contract whereby Richfield is obligated to purchase Doheny's production of both crude and natural gasoline over a ten year period at prevailing posted price.

Mr. Doheny made no announcement in connection with the deal, referring all inquiries to Mr. Talbot.

Pan American Western stockholders met in special session June 21 and elected the following directors: J. C. Anderson, J. A. Talbot, John McKeon, C. M. Fuller, George Newberger, Carey S. Hill, Sam Haskins, R. I. Rogers, and C. E. Harwood. Anderson and Harwood are the lone representatives of Pan American Western on the board. The directors elected the following officers: J. C. Anderson, president; John McKeon and C. M. Fuller, vice presidents; R. W. McKee, secretary-treasurer, and R. M. Sands, assistant secretary-treasurer. Anderson and Sands represent the Doheny interests.

It is generally understood, although not officially announced, that the transfer of properties will be concluded within 90 days. Richfield is expected to continue its headquarters in the Bartlett building in Los Angeles as at present, and will not move into the Petroleum Securities building, as has been rumored.

All properties of the Pan American, which includes properties of the Pacific Petroleum Products Co., which has handled the distribution of Pan American products in the northern part of the state, with bulk stations, storage facilities, etc., on San Francisco bay, are included.

The purchase included all crude and refined products, distributing facilities, steel and concrete storage, service stations, tank steamers, etc., owned and operated by Petroleum Securities Co., in addition to the Pan American Western owned properties. Petroleum Securities Co. is entirely owned and controlled by Mr. Doheny and his family.

The combined production of the Richfield and Pan American Western this week was about 60,000 barrels of crude daily in addition to the output of natural gasoline from 11 plants producing about 135,000 gallons daily.

Pan American's refinery in the Los Angeles refinery district has a daily capacity of 60,000 barrels straight run and 15,000 barrels cracking units, thus giving Richfield a total refinery capacity in the state of about 140,000 barrels daily charging capacity. Richfield's pipe line facilities now totals more than 500 miles of 6 and 10-inch trunk pipe lines including lines connecting Midway and Elk Hills oil fields in San Joaquin Valley with Los Angeles refineries.

The merging of the Pan American into the Richfield organization places Richfield in third place in point of gasoline sales on the West Coast and fourth in point of crude oil production. Richfield's service stations owned outright total 161. It has 50 bulk stations.

Richfield formerly pursued a policy of serving independent dealers, and leasing its own stations to others to operate, while Pan American has operated its own company owned stations. Just what policy Richfield will pursue along this line with reference to the former Pan American stations is not known.

Pan American stations are upon land owned by the Petroleum Securities Co., and it is not understood that this land figures in the deal.

The completion of this large purchase reduces the number of so-called major companies operating in California to seven, and marks the retirement from the picture of Pan American and California Petroleum, the last named having been recently taken over by The Texas Corp.

The Pan American had nearly 9,000,000 barrels of steel storage in addition to about 12,000,000 concrete reservoir storage, all of this passing to the purchasing company.

Annual report of Pan American Western for 1927 indicates a net profit of $74,368. The first four months of 1928 net income before federal taxes was $351,016, which included net income of $268,181 from April operations. Sales during April were $2,916,400 and $12,015,519 for first four months of 1928, against total sales of $30,946,184 in 1927.

Palmer Gas Interests Finance Expansion

CLEVELAND, June 23.—Financing activities of southwestern natural gas companies continued this week with the issue of $4,000,000 10-year first mortgage 6 per cent sinking fund gold bonds by the Palmer Corp. of Louisiana. The price was 99 and interest to yield 6.13 per cent.

The Palmer Corp. is engaged in the production, purchase, transportation and sale of natural gas. Its customers are industrial and public utility corporations in northern Louisiana.

According to Henry L. Hollis, president, it controls gas rights to 109,000 acres in northern Louisiana of which 58,000 acres are in the Monroe, Richland, Elm Grove and other proven gas fields. It has an open flow production of almost 560,000,000 cubic feet of gas daily from 75 wells. It also has nine producing oil wells. It has 150 miles of pipe line radiating from Shreveport.

Proceeds from the issue, Mr. Hollis wrote underwriters, will be used to retire debts incurred in the acquisition of property.

Gulf Building Tanks in East

NEW YORK, June 23.—Gulf Refining Co. is planning to build 17 80,000-barrels tanks and two 30,000-barrels tanks on Staten Island.

NEW YORK, June 22.—Reports here are The Texas Corp. is negotiating to buy some of the properties of the Galena-Signal Oil Co. Details have not been divulged.

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended June 23 Sales	First	High	Low	Last	Change
7 6	27⅛	38	27⅛	(sh) 922.075	N.P	Amerada Corp.	50cQ	Apr. 30, 28	3,500	31½	31⅛	30⅝	31½	— ⅝
82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	14,600	57¼	59	52½	57	— 1⅛
50¼	35	46½	37½	$56,000,000	$ 25	Associated Oil	50cQ	June 30, 28	300	45¼	45¼	44	45¼	+ ⅛
131⅜	104	139⅞	95¾	50,000,000	100	Atlantic Refining	$1Q	June 15, 28	123,600	126	132¾	124⅛	128½	+ 2¼
119	115⅛	118¼	116	20,000,000	100	do pfd.	$1.75Q	May 1, 28	200	118⅛	118⅛	118⅛	118⅛	+ ⅛
35½	20¾	26⅞	22⅛	28,725.675	25	Barndsdall Corp. A.	.....	Feb. 6, 28	7,900	22	22	21⅛	21¾	— ⅝
32½	20½	27¼	22	799,775	25	do B.	.....	Feb. 6, 28	100	20¾	20¾	20¾	20¾	0
32⅞	20	32¾	24	$1,524,150	25	California Petroleum	25cQ	June 1, 28	200	21⅝	29¼	21⅝	29¼	+ 2¼
96¾	65	94⅞	71¼	20,785,400	100	General Asphalt	.....	.....	17,500	71¾	72¾	68⅛	71	— 1¼
144⅞	107¼	141½	114	6,792.200	100	do pfd.	$1.25Q	June 1, 28	1,500	115	115	110¾	112	— 2
175¾	60⅛	167	127	25,000.000	100	Houston Oil	.....	.....	17,800	127¼	129¼	119	120	— 7
32¾	17⅝	31⅞	21¾	(sh) 500,000	N.P.	Independent Oil & Gas	25cQ	May 7, 28	9,400	25	25¼	23¼	24½	— ½
12⅛	7⅝	19½	9	$3,280.340	$10	Indian Refining	.....	Dec. 15, 20	59,700	16⅝	23⅞	16	22¾	+ 5⅞
12	7¼	18⅞	8½	4,550.110	10	do ctfs.	.....	.....	41,000	15½	23½	15⅛	22⅝	+ 6⅜
112	99	132¾	101	2,296,400	10	do pfd.	.....	Dec. 15, 21	700	131	158	130	158	+28
37¾	20½	39⅛	27⅛	(sh) 3.992.122	N.P.	Lago Oil & Transport	75cQ	May 4, 28	2,100	31½	32¾	30½	31¼	— 1¾
18⅛	10	19¾	9⅜	(sh) 1,237.078	N.P.	Louisiana Oil Refining	.....	.....	16,000	14⅛	14⅜	13	13⅜	— ⅞
97	85¼	101	80	$4,000.000	$100	do pfd.	$1.50Q	May 15, 28	.....	.....	.....	.....	.....	.....
22⅜	12	25½	12⅛	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	800	16	16	14⅜	15½	— ⅜
58½	31	44½	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	21,600	36	36⅜	33⅞	34½	— 1⅜
320	200	360	250	$45,942.800	$100	Mexican Petroleum	$3Q	Apr. 20, 28	40	250	250	†250	250	—50
.....	.....	.....	.....	12,000,000	100	do pfd.	$2Q	Apr. 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	39	4⅝	sh) 945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	59,700	22¼	23⅞	19	20¼	— 2⅞
39⅜	25½	33¼	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	4,600	28¾	29	28	28	— 1
105	97	115⅛	103¼	$6,718,000	$100	do pfd.	$1.75Q	June 1, 28	200	112	112	112	112	— 2
3¾	1⅝	7⅜	2⅜	24,298.850	10	Middle States	.....	July 1, 23	18,600	4¾	4⅞	4	4¼	— ⅝
2¾	1⅛	5⅞	1⅜	5,501.370	10	do ctfs.	.....	.....	2,500	3¼	3¼	3	3	— ½
1⅞	1	2¼	1¼	(sh) 3,500.000	N.P.	Pacific Oil	.....	.....	8,800	1⅜	1½	1¼	1¼	— ¼
65⅞	40⅛	53¾	38¼	$48,807.400	$ 50	Pan American P. & T.	.....	Oct. 20, 27	8,000	42	42½	41	42½	— ½
66⅜	40¼	54⅝	37¾	121,097.900	50	do B.	.....	Oct. 20, 27	29,200	43⅛	43⅞	40⅝	42⅛	— 1⅜
37⅞	16¾	28⅜	18¼	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	5,800	20⅛	21⅛	18⅞	19	— 1⅛
18⅛	8	21¾	11¼	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	4,400	14⅝	15¾	14¼	15	+ ¼
83	54	106¼	70	$2,935,200	$100	do pfd.	.....	July 2, 23	300	84	84	82	83	— 1½
60¼	36¼	44⅝	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Apr. 2, 28	13,100	37½	38¼	36⅝	36¾	— 1¼
1⅜	½	4¼	½	$29,622.925	$ 25	Pierce Oil Corp.	.....	.....	13,700	2⅝	2⅝	2¼	2¼	— ⅜
24	13½	30½	16¼	15,000.000	100	do pfd.	.....	Feb. 1, 22	600	18	18¼	18	18¼	— ¼
5½	2½	6⅝	3½	(sh) 2,500.000	N.P.	Pierce Petroleum	.....	.....	7,100	4	4	3¾	3¾	— ¼
33⅛	16⅝	26⅞	16	$37,450.850	$50	Producers & Refiners	.....	Sept. 15, 23	13,700	24⅝	24¾	22	23	— 1¾
50	36⅛	46⅞	41	2,845,350	50	do pfd.	.....	May 1, 25	50	44	44¼	44	44½	+ ½
33⅛	25	27½	19	75,959,250	25	Pure Oil Co.	12½cQ	June 1, 28	13,100	22⅝	23	21⅜	22⅛	— ½
115½	111⅝	115	108	13,000,000	100	do 8% pfd.	$2Q	Apr. 1, 28	10	112½	112½	112½	112½	0
28⅝	25⅛	50¾	24	$29,224,894	$25	Richfield Oil	25cQ	May 1, 28	75,900	41⅝	44¼	38⅞	40¾	— ¾
54½	44¼	55	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	19,900	52½	52⅞	50	52¾	— ⅜
47⅞	41⅜	47	40⅝	(sh) 77,590	£2	Shell Transport & T.	97c	Jan. 23, 28	200	46½	46½	46	46½	+ 1½
31⅜	24⅜	31	23¼	(sh)10,000,000	N.P.	Shell Union Oil	35cQ	June 30, 28	15,300	26⅞	26⅞	25½	25¾	—1¼
26⅜	14¼	24⅜	18⅛	$7,208,080	$ 10	Simms Petroleum	.....	Apr. 1, 27	2,600	21	21¼	20	20⅜	+ ⅜
22⅜	15	30¼	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	May 31, 24	77,600	23½	23⅞	22⅛	22⅞	— ¾
104½	97	109½	102½	$16,604,600	$100	do pfd.	$2Q	May 15, 28	.....	.....	.....	.....	.....	.....
37⅜	24⅛	34	25	27,396,590	25	Skelly Oil Co.	50cQ	June 15, 28	2,300	29	29	28	28	— 1
60¾	50⅜	63⅞	53	(sh)13,016,434	N.P.	S. O. California	62½cQ	June 15, 28	23,700	56⅛	56½	54⅛	56	— ⅝
41⅝	35⅛	49	37¾	$607,910.525	$ 25	S. O. New Jersey	‡25cQ	June 15, 28	47,900	44	44⅛	42½	42¾	— 1¼
34½	29¾	41½	28¾	427,973,275	25	S. O. New York	40cQ	June 15, 28	141,900	35½	36⅛	33¼	33⅜	— 1¾
34⅞	30	49	31½	(sh) 1,206.073	N.P.	Sun Oil	25cQ	June 15, 28	3,200	43	44	42	42¾	+ ¼
101⅝	99	109½	100	$5,000,000	$100	do pfd.	$1.50Q	June 1, 28	2,800	107½	107½	107½	107½	— ½
6½	3⅛	9½	2⅜	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	51,500	6¾	7¼	6	6¾	0
58	45	66⅜	50	$180,480.550	$ 25	The Texas Corp.	75cQ	Apr. 2, 28	48,900	59½	60⅜	56¾	58	— 1⅜
18⅞	12	17½	12½	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	9,500	14	14	13⅛	13½	— ⅛
29⅛	19	27⅛	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	June 30, 28	500	22½	22½	22¼	22⅜	— 1½
90⅛	85	94½	87	$20,705,200	$100	do 5½% pfd.	$1.25Q	May 15, 28	100	91	91	91	91	+ 2
19½	15¾	20⅝	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	19,800	16⅛	16¼	15⅜	16⅛	— ¼
90⅜	85	90	82⅛	$72,745,900	$100	do pfd.	$1.50Q	Apr. 2, 28	400	85	86	85	85	0
10⅜	3¾	10⅛	7	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	32.200	7¼	7½	17	7⅛	— ⅜
56½	39⅜	57	42¾	$40,791.225	$ 25	Union Oil of California	50cQ	May 10, 28	5,500	47⅛	48¼	46	47½	— ½
127½	94	128⅛	119⅜	30,844.000	100	Union Tank Car Co.	$1.25Q	June 1, 28	.....	.....	.....	.....	.....	.....
34½	24½	33⅛	26	(sh) 310,956	N.P.	Warner Quinlan	90cQ	Apr. 1, 28	10,800	35⅞	36	33½	35¼	— ⅛
27½	20	26	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	25cQ	Apr. 20, 28	1 600	22¼	22½	21¾	22½	+ ¼

*New High †New Low ‡Also extras s-Stock Total Sales 1,071,400

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended June 22 Sales	First	High	Low	Last	Change
....	....	4	2½	N.P.	Ark. Nat. Gas (new)	8 339	3	3	2¾	3	0
.....	.....	7½	6¾	N.P.	do pfd.	5,840	7⅜	7⅜ x	7⅛	7¼	— ⅛
98⅝	80⅞	114½	90¾	100	Columbia Gas.	.....	.....	.....	.....	.....	.....
107⅞	100	108½	108	100	do pfd.	.....	.....	.....	.....	.....	.....
15	7½	10	7	10	Devonian Oil	20	8	8	8	8	0
....	....	15	9¾	10	Dixie Gas & Util.	.....	.....	.....	.....	.....	.....
.....	.....	95	85	100	do pfd.	.....	.....	.....	.....	.....	.....
117½	115	116	115	100	Duquesne Light pfd.	.....	.....	.....	.....	.....	.....
.....	....	85	80½	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas.	.....	.....	.....	.....	.....	.....
59¼	37¼	58	48⅝	$ 25	Lone Star Gas	3,233	51½	52	x51	51⅝	+ ⅛
.....	....	36½	36½	25	Petroleum Exploration	.....	.....	.....	.....	.....	.....
3⅞	3	4	3¼	5	Pittsburgh Oil & Gas.	50	3¼	3¼	3¼	3¼	0
8	5½	7¼	6	10	Salt Creek Cons.	100	6	6	6	6	0
26½	17	22	16¾	10	Tidal Osage	.....	.....	.....	.....	.....	.....
43	33	33¼	30½	N.P.	Waverly Oil Wks. A	.....	.....	.....	.....	.....	.....
....	....	19	18	$ 25	Wiser Oil.	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended June 22 Sales	First	High	Low	Last	Change
....	....	10¼	9	10	Ark. Nat. Gas (old)	20	9½	9½	9½	9½	0
95	88	132	132	25	Gulf Oil.	.....	.....	.....	.....	.....	.....
....	....	115	115	....	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
10¾	5½	9	5½	25	Leonard Oil & Dev.	.....	.....	.....	.....	.....	.....
2.70	.30	1.00	.50	10	Omar Oil & Gas	1,000	.60	.60	.60	.60	.....
2¼	1¾	....	....	5	Pittsburgh Oil Dev.	.....	.....	.....	.....	.....	.....
31	19	22	16¾	5	Plymouth Oil	420	19½	19½	19	19	+1
6	5	4¾	4½	5	States Oil	.....	.....	.....	.....	.....	.....
3⅜	1½	4½	2¼	1	Texon Oil & Land	1,500	3 1/16	3 5/8	3 1/16	3 1/16	+ 1/16
23¾	18	18	15	10	Tidal Osage Non-vgt.	.....	.....	.....	.....	.....	.....

*New High †New Low x Ex Dividend

Oil Company Earnings

Annual	1927	1926
Mexican Eagle Oil Co.	*$3,348,251	*$3,647,825

*Mexican gold.

Oil Dividends

	Amount	Payable	Stock of Record
British-American q.	25c	July 3	June 15
Cities Service m.	10½	Aug. 1	July 16
do stock.	½%	Aug. 1	July 16
do pfd. 5.	50c	Aug. 1	July 16
do pref. B.	5c	Aug. 1	July 16
do pref. BB.	50c	Aug. 1	July 16
Mountain & Gulf q.	2c	July 16	June 30
Prairie P.L. q.	$3.50	July 31	June 30
Richfield Oil pfd. q.	43¾c	Aug. 1	July 5

Cleveland Stock Market

June 22	Par Value	Bid	Asked	Last Sale
Canfield Oil	100	...	115	115
do pfd.	100	x 98¼	...	100
Fred G. Clark	10	3¾	5	4½
National Refining Co.	25	35½	37½	38
do pfd.	100	x130	135	132½
Paragon Refining Co.	25	13¾	14	13⅞
do pfd.	100	122	130	120

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended June 23 Sales	First	High	Low	Last	Change
21⅛	17⅛	22⅜	17	£ 4,126,460	£ 1	Angio-American Oil	24.4c	June 6, 28	1,300	18	18⅜	17¾	17¾	— ⅛
21½	17⅝	20½	16½	.....	£ 1	do cts. non-voting	.....	.....	200	18	18	17⅛	17⅛	+ ⅛
3⅜	⅝	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	200	2¾	2¾	2½	2½	— ¼
6½	2½	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	49	1,000,000	25	Borne Scrymser	‡$1S.A.	Apr. 16, 28	50	50	50	50	50	— 1
60	45	76	58	10,000,000	50	Buckeye Pipe Line	‡$1Q	June 15, 28	300	65¾	68	65¾	68	+ 2⅜
126	76½	161	117¼	3,000,000	25	Chesebrough Mfg.	$1Q	June 30, 28	100	132	132	132	132	— 4¾
22⅜	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec 15, 27	9,300	16⅝	17	16⅝	16⅝	0
137	89	114	88	3,000,000	100	Cumberland Pipe Line	‡$2Q	June 15, 28	100	99	99¾	99	99¾	+ 1⅜
68½	47	88	64½	5,000,000	100	Eureka Pipe Line	$1Q	May 1, 28	50	72⅛	72⅛	72⅛	72⅛	— ⅛
13½	3½	13	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	2,400	7⅞	*13	8⅜	11	+ 3½
59¼	23	80	27	4,000,000	100	do new pfd	.....	June 30, 26	2,860	35	*80	35	71	+ 36
60½	35½	73	35	2,000,000	100	do old pfd	.....	June 30, 26	2,280	48	*73	48	60	+ 15
68¾	54	84¾	60	73,117,577	25	Humble Oil & Refining	‡30cQ	Apr. 1, 28	18,800	76⅝	79½	75¼	77½	+ 2⅜
182	123¾	245	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	June 15, 28	500	210	214	208¾	214	+ 2
64¾	37¾	71⅞	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	June 1, 28	4,000	65¼	65⅜	64	64¼	— 1⅛
94½	61	89½	74⅞	$5,000,000	$ 50	Indiana Pipe Line	‡$1Q	June 15, 28	200	78½	78½	78	78	— 2
39	28¼	45¼	35	(sh) 17,123,444	N.P	International Petroleum	25c	June 30, 28	20,600	39¾	39⅞	37⅜	38⅝	— ¾
24	13¼	32⅜	19⅜	$6,363,350	12.50	National Transit Co	‡25cQ	June 15, 28	2,600	21¾	21¾	20⅛	20½	— 1¼
44½	31¼	59½	37½	5,000,000	100	New York Transit	.....	July 15, 26	.....	.....	.....	.....	.....	.....
100	70	125	94	4,000,000	100	Northern Pipe Line	‡$3S.A.	Jan. 1, 28	.....	.....	.....	.....	.....	.....
67⅞	52	68¼	58	60,000,000	25	Ohio Oil Co	‡50cQ	June 15, 28	1,800	62⅜	62½	62	62½	+ ½
39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	May 31 28	1,100	42	42	25½	38	— 3½
190	132	223	184	81,000,000	100	Prairie Pipe Line	$2.50Q	Apr. 30, 28	1,400	214	214	208	210	— 3¾
55⅜	45⅜	56	47⅜	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	5,400	50½	50½	48½	49⅜	— 7⅛
201½	175½	186	167	4,000,000	100	Solar Refining	$5S.A.	June 20, 28	100	172½	172½	172	172	— 6
27¾	15½	35⅞	21	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	200	29	30	29	29	— 1
41½	35	53	36¾	2,000,000	25	South Penn Oil	50cQ	Mar. 31, 28	800	45	45	42¾	43⅛	— 3⅝
83	55½	100¾	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	Apr. 2, 28	.....	.....	.....	.....	.....	.....
81½	64⅝	83⅝	70⅞	228,415,463	25	S. O. Indiana	‡62½cQ	June 15, 28	17,200	75⅛	75⅞	73⅛	73⅞	— 2
20⅞	14⅜	27¾	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,500	20½	20½	20	20½	+ ⅛
130	111⅜	136½	122¼	17,012,559	25	S. O. Kentucky	$1Q	June 30, 28	28,300	124	124½	123	124⅜	+ ⅜
49½	40	45⅞	39⅞	4,559,850	25	S. O. Nebraska	62cQ	June 20, 28	600	41¾	41¾	41¼	41⅝	+ ⅜
87½	72	79½	71	14,000,000	25	S. O. Ohio	62½cQ	Apr. 2, 28	450	74	74	72½	73½	+ 1⅛
122	117¼	125	117	7,000,000	100	do pfd	$1.75Q	June 1, 28	10	119	119	119	119	— 1
21	14½	26	16	30,734,000	25	Swan Finch Co	.....	Nov. 1, 19	100	21½	21½	21½	21½	+ 1½
.....	.....	87⅛	72	124,941,600	25	Vacuum Oil	75cQ	June 20, 28	12,700	75½	76½	72	72¾	— 2¾

*New high †New low xEx dividend ‡Also extras.

New York Curb Bonds

Week Ending June 22

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	102¾	101	102¾	— ¼
Cities Serv. 5s '66	98	94⅝	95½	—2⅛
Cities Serv. 6s '66	104	103¾	104	0
Cities Serv. g. 5½s '42	94⅜	94	94¼	+ ⅜
Cont. Oil 5½s '37	97	96¼	96⅞	+ ⅜
Emp. O & R 5½s '42	94	93⅝	93¾	+ ¼
Gulf Oil 5s '37	100½	100	100¼	+ ⅛
Gulf Oil 5s '47	100½	100	100¼	+ ⅛
Independent Oil 6s '39	100½	99½	100	+ ⅜
Richfield Oil 5½s	100⅝	100⅜	100½	0
Richfield Oil 6s '41	120	115⅜	115⅜	—8⅝
Sun Oil 5½s '39	101⅛	101	101⅛	0
Trans. Cont. Oil 7s '30	104½	104⅛	104⅛	— ⅝
Warner Quinlan 6s '42	106½	105⅝	106¼	+ ⅛

New York Bonds

Week Ending June 22

	High	Low	Last	Ch'ge
Asso. Oil Gold 6s	102½	102½	102½	0
Atlantic Refg. deb. 5s	102	101¼	101¼	— ¾
Barnsdall Corp. 6s	101	100½	100½	— ¾
Barnsdall Corp. 6s ex war	91⅞	91½	91½	+ ¼
Cal Pet 5s	98½	98	98¼	+ ¼
Cal Pet 5½s	101	101	101	0
General Asphalt 6s	107⅝	107⅜	107⅝	— ⅜
General Petroleum 5s	104¼	103¼	103¼	0
Humble Oil & Refg. 5½	102	101⅜	102	+ ⅞
Humble Oil & Refg. 5s	100⅛	99½	99½	0
Mid. Cont. Pet. 6½s	105¾	105½	105⅝	+ ¼
Pan Amer. P & T 7s	104½	104½	104½	0
Pan Amer. P & T 6s	103	102¾	102¾	— ¾
Pan Amer. P & T 6s	97⅞	95	95	—2¼
Pierce Oil deb. 8s	106	105½	106	+ ½
Prod. & Refg. 8s	112	111	111	— ¼
Pure Oil 5½s	99	98⅜	98⅜	— ⅛
Shell Union Oil 5s	97¼	96¼	97	— ¼
Sinclair Con. Oil 7s	101⅞	100¼	101	—1
Sinclair Con. Oil 6½s	99⅞	99	99⅞	+ ⅜
Sinclair Con. Oil 6s D	98⅝	98¼	98⅝	+ ⅜
Sinclair Con. Crude 5½s	97¾	97	97½	+ ¼
Sinclair Pipeline 5s	94½	94	94⅛	0
Skelly Oil 5½s	94½	93½	93½	0
S. O. N. Y. 4½s	96¾	96	96¼	0
S. O. N. J. deb. 5s	105¼	103⅛	103⅛	+ ⅛
Superior Oil 7s	100	100	100	—4½
Union Oil of Calif. 5s c	100	99½	99½	— ⅜
White Eagle Oil 5½s	96¾	96⅝	96⅝	— ⅛

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended June 23 Sales	First	High	Low	Last	Change
2⅞	.55	1½	.75	$ 5	Amer. Con. Oilfields	23,000	94	94	82	89	— 5
7½	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	6,400	4⅞	5	4¼	4⅞	0
2¾	1	4	2¼	$ 10	Argo Oil	100	2½	2½	2½	2½	— ½
9¾	6¾	10¼	7⅝	10	Arkansas Nat. Gas	700	10	10⅛	10	10	0
20½	15½	....	....	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	40½	32¾	N.P.	British American	.....	.....	.....	.....	.....	.....
28¼	15½	23⅞	16½	25c	Carib Syndicate(new)	8,400	18⅝	19¼	†16½	18	— ¾
26	15⅜	....	....	....	do ctfs. of deposit	.....	.....	.....	.....	.....	.....
58¾	40¼	71¼	54	$ 20	Cities Service	56,400	67⅝	68	64⅜	66⅛	— 1⅞
95⅝	87	103½	94½	100	do pfd	2,100	101⅝	101⅝	100⅝	100¾	— 1¼
8⅞	7⅜	9⅝	8⅞	10	do pfd. B	300	9½	9½	9½	9½	+ ⅛
29¼	22½	34⅝	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅜	2¼	1⅛	1	Colombia Syndicate	16,800	1¾	1¾	1⅜	1⅝	— ⅛
9¾	6⅜	8⅛	6½	10	Consolidated Royal	100	6¾	6¾	6¾	6¾	— ⅛
14⅞	9½	17½	10	N.P.	Creole Syndicate	51,700	13¼	13½	12¼	13⅜	— ⅛
3	.50	3¼	.76	N.P.	Crown Central	900	1⅞	1⅞	1⅞	1⅞	— ⅛
12	4	30⅛	8¼	N.P.	Darby Petroleum	7,000	21⅝	23½	20⅛	20⅛	— 3⅜
11½	4	13½	7⅞	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	22	1	N.P.	Derby Oil & Refining	100	1½	1½	1½	1½	+ ½
16¾	4	11⅛	7½	N.P.	do pfd	.....	.....	.....	.....	.....	.....
3¾	1	2	1	N.P.	Gibson Oil	12,800	1¼	1¼	1	1¼	0
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅛	$ 25	Gulf Oil Corp	5,800	124	124	119	122¼	— 5¾
2½	.80	7⅝	1	10	Intercontinent Pet	4,100	1¼	1⅜	1	1⅛	— ¼
2¼	1⅜	3	1¼	N.P.	Kirby Petroleum	100	1⅜	1⅜	1⅜	1⅜	— ⅛
10⅞	5⅛	9⅜	5½	N.P.	Leonard Oil & Dev.	2,100	7	7⅜	6⅞	6⅞	— ⅛
27½	20	32⅜	20	N.P.	Lion Oil & Refg.	1,100	26¼	26⅛	25⅛	26⅜	— 2⅜
59⅜	37	57	48⅝	$ 25	Lone Star Gas	4,000	50⅛	51⅞	50⅛	51½	+ ½
2⅞	.80	1⅞	.91	1	Magdalena Synd	9,900	1	1¼	1	1⅛	0
21½	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	36½	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1½	40½	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4¼	N.P.	Mexico-Ohio Oil	100	5¾	5¾	5¾	5¾	— ⅛
1½	1	1½	.76	$ 1	Mountain & Gulf	1,900	82	82	†76	76	—12
29¼	22¾	28⅝	23	10	Mountain Producers	3,900	23¼	23½	23⅛	23⅛	— ⅛
5⅞	4⅜	5⅝	4¾	5	New Bradford	1,000	5⅛	5⅛	4⅞	4⅞	— ⅛
6¼	4	5½	4	10	New England Fuel	400	4¼	4¼	4	4	— ⅛
16	9¼	11⅜	7½	1	New Mex. & Ariz	2,100	8	8⅝	†7½	8⅝	+ ⅝
13⅞	9	15½	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
12⅜	9½	13¼	10¾	N.P.	North Cent. Texas	500	12	12	12	12	0
23⅞	21¼	....	....	....	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2½	N.P.	Pandem	3,000	2⅞	2⅞	†2½	2⅝	— ⅛
12⅛	7	15¼	8½	N.P.	Panapec Oil	8,700	11⅛	11½	10¼	11	— ½
9	7⅝	11⅜	10⅝	$ 25	Paragon Refg	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13½	5⅛	7¾	5½	10	Pennok Oil	700	5⅞	6⅛	6	6	0
....	....	4½	3½	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14½	8	25	Red Bank Oil	700	9¼	9¼	†8	8	— 1½
15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	4,700	6½	7	6½	7	+ ⅛
28⅜	15	31½	22	$ 25	Richfield Oil pfd	.....	.....	.....	.....	.....	.....
7	4½	9⅞	4⅝	N.P.	Ryan Consolidated	600	6	6⅝	6	6⅛	— ½
8	5¼	7¼	5⅜	$ 10	Salt Creek Cons	300	6	6	†5¾	5⅜	— ⅛
35½	27¼	35	27⅛	10	Salt Creek Prod	4,800	28⅛	28⅛	†27⅛	27⅛	— ⅝
7	1¼	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26½	17	22⅞	13	10	Tidal Osage	800	18	18	17⅛	17⅛	— ¾
23¾	15	21¼	13⅛	10	do non-voting	1,500	17	18	16½	17	0
92	63½	87	82	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
23¼	7	47	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7⅜	4¼	6⅝	4⅛	5	Venezuelan Petrol	800	5⅜	5½	5¼	5¼	— ⅛
32⅝	19½	25	18⅜	N.P.	Wilcox Oil & Gas	100	20	20	20	20	0
8	4¾	8¼	5¾	$ 1	Woodley Petroleum	200	7	7	7	7	+ ⅛
6	1¾	8¾	2⅛	25	Y Oil & Gas (new)	100	5¼	5¾	5¼	5¼	+ ⅜

*New High †New Low xEx Dividend

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Wax Prices Stiffen But Buying Lags

(*Continued from Page* 122)

shadowed interest in the current market. Foreign buyers were actively inquiring for goods over six months, mostly July to December. Refiners showed little interest in quoting over such a long period, and offered only limited quantities of scale at 4.50 cents for shipment over July.

"The test will come," one student of the market said, "in July and August when United Kingdom companies usually buy extensively for their fall candle requirements. If the market holds at current levels during the next 30 to 40 days, we'll see still higher prices next fall."

Minimum quotations for white crude scale in the current market moved up an 0.125-cent. Both the 122-124 and 124-126 A.m.p. grades were available in fair sized lots a week ago at 4.25 cents. This week only a distress 50-ton lot or so was offered at this figure. Most sellers were asking 4.375 to 4.50 cents, with the latter price minimum for July.

All grades of fully refined wax continued relatively scarce in the New York market and prices were largely nominal. The 125-127 A.m.p. grade still was offered in limited quantities by some sellers at 4.875 cents whereas others moved their prices up to 5.125 cents a pound. The one manufacturer of 130-132 A.m.p. fully refined quoted 6 cents this week against a minimum of 5.25 cents a week ago. Quotations for 135-137 leveled out to 7 cents flat, sellers reporting demand for this grade at 6.75 cents had been exceptionally good.

The New Orleans market was in much the same position as the New York market. Offerings of both white crude scale and fully refined waxes were small. South American demand was quiet but prices were generally unchanged with scale at 4.125 to 4.25 cents, and 125-127 fully refined at 4.75 to 4.875 cents.

Northern P. L. Pays $50

CLEVELAND, June 23.—Northern Pipe Line Co. will distribute $50 a share Sept. 1 to stock of Aug. 10 record in connection with the reduction in the par value of its capital stock from $100 a share to $50 a share. Stockholders recently approved a reduction in the total capital stock from $4,000,000 to $2,000,000.

Northern is the fifth eastern pipe line company to pay special dividends this year. South West Pennsylvania Pipe Lines paid $9 a share special April 1 and will pay $4 special July 2. National Transit Co. paid $7, Southern Pipe Line Co. $15 and Cumberland Pipe Line Co. $3, June 15. Cumberland also paid $8, March 15.

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